

ON THE MOVE IN THE GREAT OUTDOORS

Mobile Recreation for the Blind

Robert J. Redington

1993 Edition

Prepared by the Faculty and Staff of
The Hadley School for the Blind
700 Elm Street, Winnetka, IL 60093
With the kind permission of the author.

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INTRODUCTION

This manual provides information on how blind persons can move about under their own power in the country and other nonurban areas, through forests, over hills, and along waterways. It describes the techniques for walking along roads and paths using the cane or guide dog, and, with a sighted guide, walking along roads and paths, hiking along trails, including camping and backpacking, tandem bicycling, canoeing and rowing, and cross country skiing, followed by an Epilogue. In addition to the techniques applicable to the individual blind person and sighted guide, the Manual describes their group participation in these activities. The Manual, therefore, is designed to be of use to blind persons, their sighted guides, and those who organize and lead outings for the blind in the fields indicated.

The Manual has been prepared with the assumption that the blind person has received standard training in orientation and mobility, using the cane, the sighted guide and, where pertinent, the guide dog. It is also assumed that the blind person's hearing has been tested and found to be adequate for hearing traffic sounds. In the out-of-doors, this standard training tends to be concentrated on walking in urban and other developed areas, with sidewalks, curbs and street crossings. So the Manual, in Chapters 1 and 2, covers the more neglected area of walking in the country and other less developed areas along roads without sidewalks and curbs, and along driveways and paths.

Regarding Chapters 3 through 6, hiking and backpacking, tandem bicycling, canoeing and rowing, and cross country skiing are stimulating outdoor recreational activities available to blind persons of normal physical capacity who are guided by qualified sighted persons. The role of the latter varies with the activity. In trail hiking the sighted guide is in front of or beside the blind person; in tandem bicycling, he pedals in the front position while the blind person pedals in the rear; in canoeing, he paddles stern while the blind person paddles bow; in rowing, he sits in the stern facing the blind person who does the rowing; in cross country skiing, he skis beside the blind person and occasionally behind him. Also, he can keep the blind person informed concerning his surroundings. Hiking along steep or rough trails, backpacking, and cross country skiing require greater physical capacity than pedaling, paddling and rowing, and the strenuousness of each of these activities varies considerably according to the pace, the distance covered and, except for canoeing and rowing, the slope of the terrain.

For legally blind persons with some useful vision, some of the statements in the Manual will be less applicable than for totally blind persons. For reasons of simplicity, the blind person in the Manual will usually be referred to as "you", and the pronoun "he" and its derivatives are used for a person of either sex.

It is hoped that the Manual will encourage blind people to get out into the country or other areas with open space and enjoy there the peacefulness, the clean air, and the sounds and smells of nature while gaining healthful exercise at the same time.

ON THE MOVE IN THE GREAT OUTDOORS

Mobile Recreation for the Blind

CHAPTER 1

Walking Along Roads and Paths With Cane or Guide Dog

While the following text is couched primarily in terms of country walking, the techniques and procedures described for walking on roads and paths are applicable to all locations. With respect to walking in more developed areas, emphasis is placed on walking where there are stretches of open space, such as woods, fields and wetlands, and in city and town parks. If you live in a city or town center, there may be such an area within easy walking distance from your residence.

Walking in the country can be along a main highway, a secondary road, a back country dirt road, a driveway, a footpath, or across a lawn or field. In contrast with the city, you will find in the country, besides the attractions of a natural environment, fewer distractions, less congestion, and fewer road junctions to cross. At the same time, you will need to maintain especially good orientation when walking on your own in the country, where you are more alone and where there may be fewer landmarks and sounds to help you keep track of your location.

While most blind people live in urban areas, you may be one who lives in a rural area. If so, and especially if you are a newly blind person, you may have hesitated to walk the roads of your area, preferring the security of your house and yard and relying on motorized transportation for going farther afield. Then you, too, should be encouraged to venture forth on your own two feet along the roads and by-ways of your countryside. This could include a round-trip walk to a friend's house or to a village center to do an errand.

In this Chapter, we will first deal with the factors common to the use of the cane and the guide dog. We will then take up matters peculiar to the use of the cane, followed by those peculiar to the use of the guide dog, as alternative methods of guidance. In cane use descriptions, it is generally assumed that you are right handed. A final word will be said about electronic mobility aids.

Landmarks and Other Orientation Signs

An essential element in country walking is that of landmarks and other orientation signs which help you keep track of your location and direction. A landmark is a physical object along your walking route which you can usually feel with your cane, your feet or your hands. It could be a tree, post or rock, a fence or guardrail, hedge or wall, a change in the walking surface such as from pavement to dirt, a definite up or down slope in the walking surface, a road drain, or a side road or driveway. An especially important physical feature is a continuing edge (also called shoreline) of the surface on which you are walking where it meets a different surface. You can follow it as a guideline, normally contacting it with your cane. For country walking, this guideline will mostly be the edge of a paved road. A guideline could be a curb, the edge of a sidewalk, or the wall of a building. But these are usually not found in country walking except perhaps when approaching a village center.

Sounds can be useful orientation signs. The most important of these, and one that can be a danger sign as well, is the sound of motor traffic and the direction in which it is moving. Orientation signs can include man-made sounds such as that of voices, construction work or mechanized equipment. There are various country sounds which can be associated with specific locations or landmarks along your route. There is, for example, the sound of a flowing stream or water in a drain or culvert, the sounds of frogs croaking in a certain pond or marsh, of livestock or a tractor on a farm, or of a dog who barks from a driveway or yard at every passerby. If the sun is out, your orientation may be helped by the direction of it, either perceived or felt on your face, and by your passing from sunlight to a shaded area or vice versa. The direction of a steadily blowing wind can be another orientation sign. A more indefinite orientation sign is a smell which could be from such an object as a lilac bush or a pigpen.

Except for those which are felt with the feet, contacted landmarks are mostly of use to the cane user, while other orientation signs are useful both to cane and guide dog users.

Scouting Your Route in Advance

Before you walk alone, you should go over your route in advance with a sighted person, ideally an experienced mobility instructor such as one provided by your state's Agency for the Blind. He will point out detectable landmarks, bends, turns and junctions in your route, stop signs and other traffic controls, obstacles to be avoided, and how to locate your destination. He can tell you if a road has a shoulder to walk along or if the road is otherwise wide enough so that you may walk along its edge with safety while cars are passing. You can discover any belligerent-sounding dogs who live along the route so that in the future you may pass by them unperturbed. In addition to the distance involved, you should take note of the direction in which you walk in terms of north, east, south and west. For this purpose, you might find it helpful to carry a braille compass with you when you walk so you can check your direction when

desirable. Practice holding the compass level so the pointer on the dial can swing freely to magnetic north, after which you lock the dial in place and feel with your finger the pointer and the braille lettering on the dial. A caution here is that if you are following a road that winds or otherwise has considerable changes in direction, use of the compass may be confusing. Try to make a mental picture of your route which will flash back to you when you go it alone.

If you are using a guide dog, he can walk beside you at heel, while your sighted companion walks on your right. Next you can go over your route, working your dog in harness while your companion walks beside you or behind you, observing how you are doing.

As further preparation for walking your route alone, and for future reference, you can put down in braille or in recorded form, information regarding the route. Also, you could have a tactile map prepared of the route showing the roads and other landmarks of the area. As you get the feel of the map, you can trace your intended route on it with your finger so as to reinforce your memory regarding the route and the direction in which you walk. Of course, there will be no need for preparing a route description or tactile map if you find that from the start you can readily visualize and remember your route.

Once you are walking on your own with cane or guide dog, each time that you start off it would be prudent to let someone know, if feasible, of your departure and intended route. This should be a sighted person who would be in a position to know if you did not return within a reasonable time and who could thereupon take steps to locate you.

Keeping Oriented

When walking alone, always know where you are and in what direction you are headed. This is especially important for the country where, in contrast to the city, you may rarely come upon another person and landmarks may be few and far between. It is a good idea always to remain facing the direction in which you are headed, lest you become disoriented by turning temporarily to one side or another. Be alert to any landmarks, sounds or other orientation signs in evidence. If you become confused as to your location or direction, and cannot re-orient yourself, you can ask a person who may be nearby, or signal a passing car by holding up your hand or cane, in order to ask for information. Warning: when walking on roads, do not daydream or let your mind wander. You may not only lose your bearings, but, if there is traffic around, you would be in danger.

Walk on Left Side of Roads

As a general rule, you should walk along the left side of roads facing oncoming traffic. The reason for this is that traffic on your side of the road will see you more easily and quickly, especially your cane if you have one, than if you are walking along the right-hand side of the road with traffic coming up behind you. If you are walking with a guide dog, he will see traffic coming towards you and keep well to the side of the road; while if you walk on the right side of the road, the dog will not see traffic coming from behind you, the sound of which could make him nervous.

Several exceptions to this principle, when you would walk on the right side of a road, may be mentioned. One is in order to avoid obstacles and confusing places along the left side of the road, such as cars usually parked there, parking areas and road construction sites, or side road or left fork which poses difficulties. Another exception is where there is a broad shoulder on the right-hand side of the road to walk along, out of the way of traffic, which is lacking on the left side. A third exception is when you are approaching a side road, a driveway or other entrance on the right side of the road which you wish to turn into. Use appropriate landmarks and orientation signs in determining where to cross from the left to the right side of the road and also where to cross back again in pertinent cases. If you have crossed to the right side and, while continuing ahead on that side, have been unable to find the side road or entrance that you are seeking, you can assume that you crossed the road beyond where you should have. In that case, turn around and walk in the opposite direction until you have found your objective on your left side. If your walking route is along the same road in both directions, the road having little traffic, and you have found one side of the road to be preferable to the other as being free of obstacles and perhaps fronting on an open area, you could walk along that side of the road in both directions.

Crossing Roads, Including Junctions

The basic technique for crossing from one side of a road to the other, with no curb involved, is as follows: you square off at the edge of the pavement so as to face directly across the road. You can align the front edge of the heels of your shoes with the edge of the pavement and, if you are using the cane, you can feel the edge of the pavement on each side of you. Also, if you hear traffic along the road, you can make sure that you are facing perpendicular to the flow of this traffic. Hold the cane in front of you with the tip on the pavement so that the cane will be clearly visible to approaching traffic. When you step off with your left foot, you will initially swing your cane to the right, except in those cases where you raise it in front of you. You wait for a complete lull in the sound of traffic and then cross the road promptly, slowing down as you approach the other side so as not to step into any ditch or collide with any obstacle that may be there.

With a guide dog, you instruct him when to go forward to cross the road and, when reaching the other side, you instruct him to turn in the desired direction. Avoid crossing the road where, on approaching the other side, you know you may come up against parked cars, or may walk inadvertently into a side road, a driveway, a parking area, or construction site.

It will be assumed that the road you have to cross will usually be of two traffic lanes, one in each direction. If you should have to cross a road with more than two traffic lanes, you will have to be especially careful to be able to cross with safety, and you might need the assistance of a sighted person. You may encounter the problem of crossing a road with high speed traffic, such as a state highway, and also a problem in crossing a road where there is seldom a complete lull in the sound of traffic, although this is less likely to happen in an area of little development. Your way should be facilitated, at least in theory, by the fact that most states have a white cane law requiring traffic to stop when approaching a place along a road where a blind person using a white cane or guide dog is crossing or attempting to cross. Some laws describe the blind person with the cane as raising or extending it. However, you cannot depend upon drivers knowing this law and properly adhering to it. There is another protective measure that might be applied on your behalf, and that is to have the local authorities for the area in which you walk post one or more road signs cautioning traffic that a blind person walks here. Your state Agency for the Blind could request that such signs be erected.

You might need to cross a road where there is no traffic light or stop sign to stop traffic and there is rarely a complete lull in the sound of it. You may find from experience that you can cross such a road with safety when the traffic you hear along it is still at a distance. In this case, if you are using the cane, just before and as you start across the road, you should raise your cane in front of you for several seconds, parallel to the ground or with the shaft slanting downward. This will help alert traffic regarding your position and movement. The road you cross should be one where traffic moves at only a moderate speed, governed by a speed limit of let us say 35 miles an hour or less, and where traffic would have ample time, if need be, to slow down when seeing you cross the road with your cane or guide dog. Otherwise it may be that, as you stand at the edge of the road with your guide dog, or with your cane which you are holding with the tip on the pavement in front of you, you will hear one or more cars approaching on either side of the road coming to a stop so as to permit you to cross in front of them. If this does not happen, and there are no adequate traffic lulls permitting you to cross with safety, then when using the cane, you can hold it raised in front of you, the shaft pointing straight down to avoid the possibility of its colliding with any vehicle, until you hear traffic coming to a stop, as described in the previous sentence. In both these cases you could then proceed to cross the road, holding your cane up in front of you at the start. Also in these cases, any traffic on a side road here should be stationary as well, when you are crossing, but if traffic moves out of the side road, you should wait for it to pass before you cross. In making road crossings with a guide dog rather than a cane, the dog will give you the protection of not obeying your instruction to start forward across the road if there is oncoming

traffic you have not noticed or have misjudged, and he will stop in the face of an approaching car if you have already started across the road. Also for enhancing your safety, in cases where there are certain hours of the day when traffic on roads you cross is usually heavier, such as an afternoon rush hour, you can plan your walks there so as to avoid those hours.

Regarding crossing a road with high speed traffic, while waiting for a lull in the sound of traffic in all directions, you must make sure that the sound of a car receding into the distance along the road does not obscure the sound of an oncoming car from that direction which could pass you in a matter of seconds. If you are using a cane, just before and as you start across, hold it up in front of you for several seconds, as previously described, to alert any traffic which might be in the area. If you hear a car pulling out from a side road or waiting to do so, it is best to wait until the car has gone on ahead, as well as any following car, and until there is a following lull in the sound of traffic. If you are attempting to cross a high speed road at a junction where there is a traffic light and little traffic, you cannot depend upon being able to detect when you have the green light with you to facilitate your crossing.

Another precaution to be noted is that you may not be able to cross a road with high speed traffic where there is a hill, a curve, a competing noise, or anything else that could mask the sound of approaching traffic. If it appears risky for you to cross a road by yourself, you should either get a nearby person to help you across or you should not cross at all. In selecting your walking routes, try to avoid as much as possible roads with high speed traffic and keep to the pleasanter atmosphere of secondary and countrified roads where traffic is usually light. A dead-end road is recommendable for having no through traffic on it.

Certain procedures regarding your crossing at road junctions should be pointed out. A junction may be an intersection where one road crosses another, or a T-junction where one road ends perpendicular to another. We will call one of the two roads the main road, which it usually is, and the other we will call the side road if it ends at the junction, and a side road or crossroad if it crosses at the junction. In the country, the side road usually has a stop sign. But at a busy junction there may be a traffic light or even four-way stop signs. You should know what the traffic control is at each junction you come to.

You should remain alert to the sound of stopping, starting and idling of traffic, as well as to the direction of its flow. This will help your alignment perpendicular or parallel to it. When crossing at a road junction, you should wait, if possible, for a lull in the sound of moving traffic from all directions and also in the sound of cars with engines idling waiting to move. If such a lull is not forthcoming, there must be at least no movement of traffic along the road where you are to cross. In the case of a busy junction with a traffic light, you should cross the main road or the side road at the beginning of the green-light cycle, which you detect by the sound of traffic parallel to you starting up and the traffic perpendicular to you coming to a stop. Thus, when you cross at a busy junction, with a stop sign or a traffic light, you may be accompanied by

traffic crossing the junction on the road parallel to you and you may be, at the same time, crossing in front of traffic with engines idling waiting to pull into the junction. You should be alert to the sound of any car which seems to be turning at a junction across your intended route, in which case it is safest to wait for it to pass before you proceed ahead. It may be that you are standing at a junction waiting to cross a main road, or a side road, and you hear a car idling on the side road on either side of the main road, waiting to pull into the junction. In this case, if there is a lull in the main road's traffic, it is best to wait for the car to go ahead from the side road, as well as any following car, and for the sound of it to die away before you cross. You could even signal the driver, if practical, to proceed ahead. If he seems to be waiting for you to cross the road, you can do so, initially holding up your cane if using one. The traffic control at these junctions is assumed to be the normal stop sign on the side road.

As indicated earlier, a guide dog will provide you with an element of safety when crossing at road junctions. In general, the more you walk in countrified or less developed areas and along secondary roads, the less traffic you will have to contend with at road junctions. It is reassuring to know that most of your crossings at road junctions in the country will probably be relatively free of traffic.

Let us say that you wish to cross a main road from a side road, having walked along the left side of the side road and approached the junction. The sound of any traffic along the main road crossing the junction in front of you can warn you of how close you are getting to this junction, as can the sound of a car passing you and slowing down to stop at the junction. Be sure to follow the edge of the pavement left all the way around the corner to where it straightens out as the edge of the main road. This will ensure that you do not walk inadvertently out into the main road and that, when you square off on the main road, you will be facing directly across it and not at an angle facing the junction. If you have a guide dog, he should stop on reaching the main road, and you then give him instructions to go left around the corner to the edge of the main road, where you square off to cross it, as previously mentioned. When you have crossed the main road here, you will normally turn right to follow its left side. However, if you are crossing at an intersection and you wish to continue to follow the crossroad which you have been on, it is best to head a little to the left as you cross the main road, so as to avoid the possibility of walking directly into the crossroad. Then, on reaching the other side of the main road, you will turn right to go a few feet before turning left into the crossroad.

Now let us say that you are walking along the left side of a main road and you wish to cross the entrance of a side road. Assuming that you are using the cane, you will feel the edge of the pavement turning left when you have reached the side road. Here you stop at the edge of the main road while remaining facing forward. When you hear the way to be clear, you continue ahead across the side road entrance to regain the left edge of the main road. To avoid the possibility of angling to the right into the main road's traffic lane, you can aim a little left as you cross the side road, and you can also make broader sweeps of your cane to each side as you cross. Then

you will be certain to contact with your cane either the far edge of the side road, which you then follow around to the right to regain the edge of the main road, or you will contact directly the far corner and the continuing edge of the main road. If you are walking with a guide dog, he should stop when you reach the side road. When the way is clear, you instruct the dog to go forward, you walk across the side road entrance and continue along the left side of the main road. A more cautious way for you to cross the side road, whether with cane or dog, would be an inside crossing. Here you would round the corner to the left and go several paces into the side road, and then square off to cross it. When the way is clear, you cross to the other side of it and then follow your way to the right to regain the edge of the main road. With a dog, you give him appropriate instructions for each turn that you make. You must be sure to allow adequate clearance for any inside crossing that you make in front of a car which is waiting to pull out of the side road. Be alert from previous experience to a pavement edge which curves very gradually into a side road where you could lose trace of which road you are on. The crossing of such a side road should be an inside crossing.

When walking along a road, you need not pause on reaching the entrance to a driveway or to a minor side road, paved or unpaved, which seldom has traffic, unless you hear the sound of a car which is turning into it or coming out of it, or is standing there with engine idling. You should know the location of these entrances to side routes. If you are using a guide dog, from the basic training which he has received and from the supplemental instruction which you give him along the route, he should not stop at these entrances unless a car is approaching or standing there. If you are using a cane while passing side entrances without stopping, take care to continue walking straight ahead, neither drifting right out into the road you are following, nor going too far left into the side route for lack of a guideline there. As you cross these entrances, you can make wider sweeps of your cane along the surface so as to ensure that you will encounter the far corner of them and the continuing edge of the road that you are following. You may find that a paved driveway has a guideline in the form of a lip across its entrance, which may occur especially along a curbed section of a road.

If, from the left side of a main road you wish to turn right at an intersection into a crossroad, it is usually easiest first to cross to the right side of the main road and then go right to make an inside crossing of the crossroad so as to follow its left side. Similarly, to turn right on a main road from the left side of a crossroad, you can cross the latter road first and then the main road so as to walk on its left side. At a T-junction, to turn right on a main road from the left side of the side road ending there, you simply cross the main road and continue along its left side. Of course, if you are to turn right off the main road not far beyond the intersection or T-junction, you had best walk along its right side, thus avoiding having to cross it twice.

Another type of junction is a fork in a road. You should know from previous experience, and possible landmarks, when you are approaching such a junction. Assume you are walking along the left side of the road. If you wish to take the left fork, all you do on reaching it is to follow it to the left. If you have a guide dog, he

may stop on reaching the fork and await your instructions. If you wish to take the right fork, you can do one of two things. One is to go several paces into the left fork, square off and cross it as if it were a side road, follow its other side to the right, and then turn sharply left to follow the left side of the right fork. The other alternative is to cross to the right side of the road before you reach the junction. You then go along that side to enter the right fork which you cross to the left side and continue along that side. If you adopt the first of these alternatives, you will have only one road to cross. If you adopt the second alternative, you are assured of not walking along a left fork by mistake. But with two road crossings, you may have more traffic to contend with.

Let us reverse the picture and say you are approaching the junction from the opposite direction, with the above mentioned right and left forks called the east and west forks, respectively. Walking along the east fork, you just continue along the left side of the road as you reach and pass the junction. If you are walking on the left side of the west fork, when you reach the junction you round the corner sharply to the left to enter the east fork and you then cross it and turn right to follow the left side of the road beyond the junction.

Other Road Walking Points

If you are going along a road which does not have a shoulder which permits you to walk outside the traffic lane, especially in the case of a narrow road, you can stop and step to the edge of the road, or off it, when you hear a car approaching on your side of the road and, more important, when you hear cars approaching from both directions. Keep in mind that a car passing you on the far side of the road and receding into the distance ahead may obscure the sound of a car approaching you on your side of the road. You remain facing forward and you hold your cane, if you are using one, erect on the road side. When the car has passed, and you have waited for any following cars to pass, you resume walking along the road. Assuming you are walking along the left side of the road, you may apply this same procedure when you know you are approaching a sharp bend to the left in the road where the oncoming car may not be able to see you around the corner. Avoid roads where you may need to stand aside frequently for traffic.

At times it may seem helpful to you to count the number of paces you take from a detectable landmark to another point which you wish to locate, such as where to cross the road or turn into a driveway. If you resort to this method, you must make sure that you remember the number of paces required, that your paces are of a regular length, and that you do not lose count as you are pacing. Except for very short distances, it is recommended that you count double paces rather than single ones.

If you have things to carry, you should put them in a knapsack on your back, especially if you are walking with a guide dog. This is more comfortable for walking

any distance, and it leaves your free hand unencumbered. If you do carry something in your hand, put it in a bag or other receptacle with a carrying handle.

The Long Cane

The long cane (also called the white or prescription cane), is the principal guidance tool of blind persons. All such persons who are able-bodied should be trained in its use. It is longer than a regular cane, reaching from the ground to your breast bone or armpit. (For rapid walking, in order to allow more time for reacting to obstacles, a longer cane is sometimes recommended, reaching as high as the chin or even higher.) It is made of aluminum or fiberglass, and has a tip which is replaced when it is worn down from use. It may be wrapped with reflector tape which shows up at night. The cane is usually rigid which is best for walking. There is also a collapsible cane of a folding or telescopic type. This is less sturdy than the rigid cane, but is more convenient to keep with you when you are only using it intermittently.

Techniques of Cane Use

As you hold the cane in front of you with your arm straight, keeping the handle about on a line with your belt buckle, you can use one of several techniques for moving the cane to guide you as you walk. They will be described here together with their relative merits.

1. The "touch technique" (sometimes called the "two-point touch"), one of the two principal cane techniques. You swing the cane back and forth a little above the surface and tap the point down at the end of each swing, a little outside the line of the shoulder. This technique is best used along relatively straight sections of paved road, as well as on such surfaces as grass and loose gravel on which it would be difficult to slide your cane. A reverberating sound of the cane tapping on a pavement may help you detect a nearby object, such as a wall. However, the technique is not as effective as the others described below for following the edge of a road or other such guideline. (When the touch technique is used for this purpose, it is sometimes called "touch technique trailing.")
2. The "constant-slide" which is the other principle technique. You maintain continuous contact with the walking surface as you slide the cane back and forth. This technique gives you the most information regarding the nature of the surface and so best alerts you to changes and irregularities in it. However, for rough surfaces, there is more opportunity for a cane to stick than with the touch technique.
3. The "touch-and-slide." You swing the cane towards the center of the road with the tip a little above the surface and then tap it down and slide it back along

the surface to the edge of the pavement or other guideline. This method provides more information on the nature of the surface than does the touch technique. As variations of this method, after tapping it down, you can swing the cane a little above the surface part way back toward the guideline, or virtually all of the way back, then tap it down and slide it farther to the side until you have detected the guideline or landmark you are seeking.

4. The "touch and drag." This is a variation of the touch technique and is used to trail a drop off from the surface on which you are walking, such as a curb, the prominent edge of a pavement, or a ditch. You tap or slide the tip of the cane down at the drop-off, and then drag it up over the edge so as to clearly detect its location before you swing the cane back to the other side.
5. The "three-point-touch technique." This is used when you walk along the edge of a road with a curb and wish to find a landmark on the surface above the curb, such as a side path. After you sweep the cane towards the curb, you slide it up the curb and along the surface above, and then you swing the cane back to tap it down on the other side. In country walking, there will be only limited use for the three-point-touch technique and it will probably be in a varied form with features other than a curb. The technique should be used for only short distances and when walking at a slow pace.

You have undoubtedly been trained to move the cane "in-step" with whichever of the above techniques you use. Each time your left foot goes forward, you move the cane to the right, and each time your right foot goes forward, you move the cane to the left. This gives you the maximum coverage of the route you are following, including any obstacles it may contain, in advance of each step that you take. However, there is another rhythm of the cane which can be useful in country walking. It can be called the "double-step cane movement." You move the cane at one-half the rate of the in-step movement, sweeping the cane to one side while you take two steps, and then to the other while you take the next two steps. With this double-step cane movement, the constant-slide technique is the easiest to use. For walking briskly and for walks of some length, the double-step movement is less tiring on the arm and wrist than the in-step movement. It makes for more relaxed walking and also gives time for a wider sweep of the cane when desirable. As the double-step movement provides less full detection of the walking route ahead of you and less frequent contact with the edge you are following, it should not be used in areas where there are likely to be obstacles or other difficult places in your path, nor should it be used in areas where you wish to detect landmarks at the edge of your route, such as entrances to driveways. As a compromise between the in-step and the double-step cane movement, you could take two steps while moving your cane to one side and a single step while moving it to the other.

Two variations in the use of the double-step cane movement should be mentioned here. To help you to remain in contact with the edge of a paved road, you could do as follows: each time you take the second step while sliding your cane toward the edge

of the road, raise it, move it farther to the side, and tap it down on the unpaved adjacent surface. Then, as you start your next step, lift your cane back onto the pavement before sliding it back towards the center of the road. This can help avoid your cane catching in the rougher surface next to the pavement.

Regarding the second variation, a combination of the double-step cane movement and of the touch technique can be used for walking along a rough pavement, or an unpaved road with a surface of gravel or other rough or loose material which is not smooth enough for the constant-slide technique. Here, with each step you take, you tap the cane down, on the left, then in the center, then on the right, and then back to the center, and to the left, and so forth.

Special Techniques

If you wish to find a landmark to the side of your route, you should be sufficiently familiar with the route to know when to start sweeping your cane farther to that side so as to encounter the landmark. For example, when walking along the left side of a paved road, you wish to find an unpaved driveway or pathway on the left to turn into. Using the in-step rhythm, you slide your cane to the left each time along the ground surface beyond the edge of the pavement until you detect a change in that surface, such as from grass to dirt or from dirt to gravel. To ensure that you have found the driveway or path, you can stop while remaining facing forward, and holding the cane in your left hand, you extend it as far as possible to your left and slide it back and forth along the ground. An alternative technique, which is especially useful for detecting a paved road, driveway or walkway, let us say going left from your route, would be the standard touch technique moved to the left. Each time your left foot goes forward, you tap the cane down nearer the edge of the road than normal, and as your right foot goes forward, you raise your cane, move it to the left off the road, and tap it down on the adjacent ground. You continue to do this until you have detected the paved surface which you are seeking. In another case, when you know you are approaching a place with a drop-off at the side of the road, such as a ditch, a drain, or a culvert opening, move your cane each time far enough to the side beyond the walking surface to detect the drop-off so as to remain well clear of it. Here you might use the touch-and-drag technique.

You may wish to locate a landmark, let us say, to the left of the road, such as a tree, rock or stone pillar, which can best be contacted by raising your cane above the ground level. Here you could apply a variation of the three-point-touch technique. When you know you are approaching the landmark, you sweep your cane to the left edge of the road, and then raise it and move it farther left before sweeping it back to the right. You continue this technique until you have contacted the landmark.

In the use of the three-point-touch technique such as that just described, you could vary your in-step movement so that as you swing your cane to the guideline, let us say to the left, you bring your right foot up and place it next to your left foot, your weight

remaining on the latter, and as you raise your cane and swing it farther left, you move your right foot the rest of the way forward. Then, as you step with your left foot, you move your cane back to the right side. This variation is a slower, more deliberate application of the three-point-touch technique.

It is desirable to mitigate the problem of the cane sticking in such places as cracks, holes, mud, dirt, or undergrowth. If your cane catches in one of these places, it can give you a rude jab in the front of your body, especially if you are walking briskly. To help alleviate this sticking, there are several things which can be done. When your cane sticks, extricate it as quickly as possible. If you are sliding your cane along the surface, do it as lightly as possible. If you are using the touch technique, which has the advantage of minimizing the area of contact where the cane might stick, tap the cane down lightly on each side with a sort of bouncing motion, moving the cane higher between taps. If the end of your cane begins to feel heavier, tap it down sharply several times so as to dislodge any mud or other material sticking to it.

Your cane does not protect you against obstacles extending across your path above the waist level, such as branches, hanging signs and mailboxes. When you know from previous experience that you are in the area of such obstacles, you should extend your forearm out in front of you at face level. This will protect your face and will permit you to push the obstacle aside, or to go under or around it.

Another technique used supplementary to the cane, and occasionally to the guide dog, is trailing a vertical surface with your hand. This surface may be that of a parked car, or of a hedge, wall or fence. You cup the fingers of your free hand, extend your arm and slide the back of your fingers and knuckles along the vertical surface, which helps to guide you past it.

For getting around cars parked at the edge of a road, you can trail either side of the car with your adjacent hand when using the cane, which may require shifting the cane to your other hand. With the guide dog, you should pass the car on your right if you wish to trail it, which would be with your right hand. If you go around the car on the road side, before you start make sure that you do not hear any car approaching on your side of the road.

Paved Roads

Regarding walking along paved roads with the cane, there has already been discussed the matter of landmarks and orientation, walking on the left side of roads and its exceptions, stepping to the side for traffic, crossing roads including road junctions, and locating points at the side of a road.

When walking along a paved road, you should trail the edge of it by feeling that edge with every swing or two of your cane to that side. This is normally the edge of the pavement, but it could be a gradation into a rougher surface, or dirt at the

shoulder, or undergrowth infringing upon the road's edge. As indicated earlier, in an area of some development, you may have the more pronounced guideline of a curb at the edge of a road to follow. Your cane's contact with the edge of the road will keep you from angling inadvertently out into the road. If you should lose contact with the edge of the pavement, promptly angle your way back towards that edge to resume walking along it. If the pavement you are following has a pronounced edge which drops off for an inch or more, be careful not to step on that edge lest you turn your ankle. If a paved road has a dirt shoulder or a bordering grassy strip which is broad and smooth enough to walk along out of the way of traffic, you may walk there. In this case, you would have as your guideline the edge of the pavement on the road side of you, which you would contact with each swing of your cane to that side while best using the touch technique. If a road has a walkable unpaved shoulder, but you find it easier to walk along the pavement, then when a car approaches on your side of the road, you can move onto the shoulder and walk there until the traffic has passed. Keep in mind that walking conditions along an unpaved shoulder of a road can change for the worse, as from a washout, an accumulation of debris after a rain storm, or encroaching plant growth in spring and summer. Also, it is best not to walk along an unpaved shoulder of a road if there is a chance of your slipping into a ditch next to it.

Encountering a parked car blocking your route along a road can be an abrupt experience, especially if it is a truck, van or similar large vehicle. It is best to walk along the other side of a road from where you know a car or cars may sometimes be parked. Failing that, move cautiously and stop the instant your cane contacts a parked vehicle lest you have a bodily collision with it. There is a certain technique you can adopt which will allow you to contact a parked car with your cane a foot or so in advance of what it would be if you used a conventional cane technique, thus giving you a greater reaction time. This would be a variation of the touch technique so that each time that you swing your cane to one side or the other, you raise the tip of it to about the knee level, where your cane would contact the front or rear bumper of the car rather than sliding under the bumper.

If you hear a car ahead of you with its engine idling which seems to be standing on your side of the road, including in a driveway there, stop until it has moved on. If it does not do so, continue ahead carefully, and if it seems to be in your path, pass it on the other side of the road.

A problem arises if the edge of the road which you wish to follow with your cane, has become covered with leaves, dirt or other debris. If the debris is light enough, you could use the touch-and-slide technique, pressing the cane down firmly to find the edge of the road as you slide it to that side. If the debris is heavy, you may need to walk clear of it nearer the center of the road while feeling periodically for the edge of the road by moving your cane farther to that side. If you encounter a loose obstacle in your way along a road, such as a rock or a fallen branch, remove it.

Before you walk outside, you should find out about weather conditions so you will know how to dress, which may include waterproof footwear if surfaces are wet. You may be able to skirt puddles and running water along the edge of a road but you cannot be sure of it. Walk carefully if you encounter mud or other wet material along your route which you cannot skirt lest you slip on it. Also keep in mind that the sound of wind and rain, not to mention manmade sounds, can lessen your ability to hear oncoming traffic.

You might occasionally stray to the wrong side of the road, usually the right-hand side, having failed to keep in adequate contact with the left side of the road. You will know you have done this when your cane comes in contact with the edge of the road in front of you or on your right-hand side. You should then square off at the edge of the road and cross back to the left side. If you become disoriented in this process, you may be able to determine your correct direction of travel by the position of the sun or by the use of the braille compass.

If you have found that you have walked inadvertently into a driveway or side road, you may encounter the far edge of it with your cane which should help you find your way back to your proper route. Your braille compass and the sound of any traffic may also help you orient yourself. If you know the width in paces of the road you are supposed to be on, and you have gotten off onto a narrower side road or driveway, you can confirm this by pacing it off, but being careful not to lose orientation. Another indication that you have gotten off onto a side route is to find your walking surface sloping up or down when you know that the road you are supposed to be on is level. Another problem could be that you lose contact with a paved road you are following by inadvertently getting off onto an unpaved adjacent surface, such as a parking area or a broad entrance to a driveway. Here you should stop, feel for the pavement with a wide sweep of your cane, and then turn and walk as directly back to the pavement as possible.

Under certain limiting conditions, you might wish to walk along a road carrying your cane rather than using it, thus giving you the freedom of swinging both your arms. Here, you would hold your cane balanced in your hand parallel to the ground. In using this technique, you should walk straight ahead along the side of a straight section of road with little traffic, and you should know your route to be free of obstacles and of side road complications. Periodically, such as after every five to ten double paces, you should bring your cane into play long enough to keep you or bring you along the side of the road. Also, use your cane when you hear traffic approaching or idling nearby.

Dirt Roads

In comparison with paved roads, usually dirt roads will get you more into the back country and the woods, and there will be less traffic and slower moving vehicles. As with paved roads, you should walk along the left side of dirt roads. Their edges may

have loose dirt, stones, weeds and other encroaching growth, and are usually more indistinct and harder to follow than the edges of paved roads. The easiest way to walk along dirt roads is not to try to remain in continuous contact with the edge, but rather to walk nearer the center where the surface is firmer and better for walking. Also, in this way, you are more apt to avoid any branches or other plant growth projecting from the edge and any ditches your foot might slip into. At the same time, you should periodically swing your cane far enough to the side to locate the rougher edge of the road and a possible drop-off at that edge. In the case of a narrow, rudimentary dirt road or driveway, which has separate tracks hardened by wheels, you should follow the left-hand track which you detect with your cane and your feet.

In walking thus along a dirt road, you must observe one essential rule, which is that as soon as you hear a vehicle approaching from either direction, you move promptly to the edge of the road, normally the left edge, until the vehicle has passed. If you sidestep to the edge of the road rather than turn and walk to it, be sure to sweep your cane on that side of you so as to explore your path. If you find yourself going beyond where the edge of the road should be, you have probably gotten into a driveway or other cleared area and should carefully work your way back to find the edge of the road. As previously mentioned in this Chapter, while standing at the edge of the road facing forward and waiting for the vehicle to pass, you hold your cane erect on your right or road side. However, once at the left edge of the road, you may be able to walk along it with safety if the approaching vehicle is going in your direction along the right side of the road. Before you resume walking on the firm surface of the road, take care to listen for any other car or cars which may be approaching, the sound of which may have been obscured by the first car.

Be alert to the possibility of a car approaching you slowly whose quiet engine may be hard to hear. Also, such a noise as that of a tractor, a mowing machine, a chain saw or an overhead airplane may prevent you from hearing an approaching car, in which case you should stay along the edge of the road until the noise has abated. Further, you should keep to the edge of the road when the action of wind or rain could interfere with the sound of an approaching car.

In walking along a dirt road without being in constant contact with the edge of it, especially a narrow, twisting road, there is an increased chance of your getting over to the other side of the road and of slipping into a ditch beside the road. Thus, it is important that you be familiar with your route and walk with caution where needed. If the road has a pronounced crown in the center and slopes off to each side, this will help you detect with your feet on what part of the road you are walking, and so help keep you along the left side of the road.

In walking along a dirt road, you may have difficulty in locating a driveway or side dirt road which you wish to turn in to. Here you need to know when to move to the edge of the road so as to start feeling for the driveway or side road with broader sweeps of your cane to that side. You should try to associate this location with a detectable landmark or other sign, such as a sharp up or down slope in the road or the

sound of a nearby stream. You may need to count paces from such a landmark or sign to where you should start feeling for the side road or driveway with your cane. If there are a considerable number of paces involved, counting double rather than single paces will be easier.

If you pass a side road, you need not move to the edge of the road you are on, or stop as well, unless you hear traffic coming from any direction. In any case, when you approach a dirt road junction, be alert to traffic sounds and to ensure that you take the correct route. When you are approaching a junction with a paved road, move to the edge of the dirt road and slow down so you may detect that edge turning into the paved road, where you should listen for traffic.

Unfortunately, dirt roads can make for sloppy, rough walking with holes, ruts and mud, especially during the spring thaw. On slopes, dirt roads may have washboard-type bumps and eroded gullies caused by running water. You can avoid walking on such roads when you know conditions are poor. The constant-slide technique is best for alerting you to such surface irregularities, but you must be prepared for the increased possibility of the cane sticking in different places.

Driveways

You may walk for short distances on private driveways. For a paved driveway, as for a paved road, it is best to follow the left edge of it with your cane; while for a dirt driveway, as for a dirt road, you can follow the left half of it where the surface is most firm. If a car approaches you on a driveway, you should step off to the side until it has passed.

Paths and Railings

Paths in the country (to be distinguished from hiking trails described in a later chapter) are usually of dirt and may parallel roads or go elsewhere, such as along utility or old railroad right-of-ways. Paths may be in parks, in campgrounds and on the grounds of institutions and private residences, where they may be paved walkways. Some paths are unclear with ill-defined edges, and it is best to avoid them.

As you walk along a dirt path, try to feel the surface as much as you can with your feet and your cane. Use the constant-slide technique to feel both edges of the path if it is narrow enough, and for a broader path follow the edge that seems more clear-cut. However, if the surface of the path is readily distinguishable from the adjacent terrain, as with a paved walk, you may not need to trail its edge. For a path of loose gravel, it is best to use the touch technique with your cane. For a paved walk, you may prefer the constant-slide technique. In places you may need to follow that side of a path which is necessary for detecting a landmark with your cane, or to avoid getting off onto a wrong route. If you hear persons on the path who are going to pass

you, you should keep to your right, and if space is limited, you can stop at the edge of the path until they have passed. Take care to pass between any posts that may have been erected across the path to keep out motor vehicles.

If at a junction of paths, including a triangle, you find you have taken the wrong one, turn back immediately and, picturing in your mind where your correct route lies, follow the appropriate guideline. If you find you have gotten off a path onto adjacent terrain, detectable by a change in the walking surface, stop immediately and, holding your position, slide your cane as far as you can about you to locate the path so as to return to it. If you cannot locate it this way, do an about-face and try to retrace your steps until you have recovered the path, sweeping your cane in a wide arc about you. If the path you are following becomes obscure, turn back lest you lose your way. If the path has become obscured by loose debris, continue ahead only if you can detect the path beyond the debris to be clear after you have taken only a step or two along the obscure section.

If you are to continue along a path which crosses a road, be alert to stop at the edge of the road to listen for traffic. If you then cross the road directly, you may not immediately encounter the path on the other side, unless you sweep your cane broadly to each side, or turn and feel for the path as you walk along the edge of the road, which you may have to do in both directions. Alternatively, on reaching the road, you could go a few paces left along its edge, then cross it, turn right, and feel for the path on your left as you walk along the far edge of the road.

Some areas, notably the grounds of summer camps for the blind, have paths and driveways with handrailings on one or both sides to guide blind persons. The railings are of metal pipe, rope or logs, supported by posts. When you follow a railing, extend your arm in advance of your body and slide your hand, mostly your fingers, lightly along the railing. Jump your fingers over or slide them past any joints or other rough places, as well as any turns in the railing at side routes which you are not to follow. A log railing may be rough in places with sharp points sticking up. Here, rather than sliding your fingers along it, you had best tap your fingers down on the railing with every step or two that you take. To continue past a gap in a railing, where there is a side route, steps, or other entrance, keep your hand in the same position as it was on the railing and no higher, so as to pick up the railing on the other side of the gap.

Follow the right-hand railing of a path or road, if there is one. You should move over to follow a left-hand railing only when necessary to find an entrance or side route which you wish to enter, or where there is no right-hand railing to follow. There is the possibility of your colliding with another blind person coming toward you along the same railing. This is, of course, made more likely if there is a railing along only one side of your route. To avoid or mitigate a possible collision when following such a railing, you can use a cane with your free hand as described hereafter, or you can extend your free arm slanting down ahead of you with your hand about opposite your belt buckle. Also, if you are following a path with a railing only on the left and a detectable edge on its right side, you could follow that side using your cane. When

following a railing, if you hear anyone approaching, you can announce your presence by saying that you are following the railing on your right or on your left. If you are following a left-hand railing and encounter a blind person coming toward you along that railing, you should move to your right to let the person pass by you along the railing, after which you can resume contact with it. If you are following a right-hand railing, a person coming toward you along that railing should move aside to give you the right-of-way. Avoid standing quietly at a railing where you may be collided with and avoid walking very slowly along a railing lest a blind person coming up behind you collide with your back.

In order to find desired points along your route, such as side paths and entrances to buildings, you could use certain landmarks and other orientation signs. These could be turns and gaps in a railing, special markings on a railing, slopes and other changes in the surface under foot, and the sounds of people and equipment. If you are unfamiliar with the routes served by railings, you should initially have a sighted person conduct you along them, or at least have the routes explained to you so you may explore them on your own.

When following paths and roads with railings, you may not feel the need for a cane, especially once you are familiar with the routes. A cane will be useful if there are any obstacles, rough places, or steps along your route.

Regarding your cane technique when following a right-hand railing, your left hand should normally hold the cane angled down in front of you. If your route is a paved one and is smooth enough, you can slide the cane tip ahead of you along the surface. Otherwise, you should hold the cane tip a little above the ground. This will detect obstacles and up steps in your route. If there are any down steps along your route, you can tap the cane down with your left hand with each step you take in order to detect the down steps. If you follow a left-hand railing, you can use your usual cane technique with your right hand, or else move your cane ahead of you as described in the case of the cane held by your left hand. If you are following a railing without a cane, and you are in a section where a path has steps, a sharp slope, or rough places, each time you move your foot forward to take a step, keep your weight as long as you can on your rear foot until your forward foot has detected where you are to step.

If you are using a guide dog for guidance, you can contact a right-hand railing with your hand for purposes of orientation when desirable.

Fields and Lawns

Once you have mastered the techniques of country walking with the cane, you may wish to become more adventuresome by sallying forth across lawns, meadows and fields. As with other walking, you should first go over the whole route carefully with a sighted companion, noting, among other things, the direction you are following and the distance involved. It is best to use the touch technique because of the difficulty

in sliding your cane along the surface. If you are walking across an extensive lawn or field, to help keep you in the desired direction you can make use of an orientation sign, discussed earlier in this Chapter, such as the position of the sun and natural and man-made sounds, and you can consult a braille compass. As part of your route, you may wish to follow a hedge, a row of bushes, or the edge of the woods. You can best follow the right side of a hedge, trailing it with your left hand. The edge of woods or of bushes is less definite and uniform, and so it is hard to trail such an edge with your hand. You should rely on your cane to feel that edge and, at the same time, you may need to extend your arm to protect your face from projecting branches. As you walk in the clear along the edge of the field or lawn, you should periodically swing your cane far enough to the side above ground level so as to feel the edge of the woods or the bushes. If there are brambles projecting out from this edge, it is best not to walk here at all. In walking about a lawn, you may have occasion to trail along a house or other structure, to follow a walkway, and to notice up and down slopes, all of which may serve as landmarks for you.

Walking in Winter Conditions

The snow, ice and slush of winter can complicate your walking. They prevent you from detecting the edge of a pavement and can obscure other landmarks that you may depend upon. To the extent possible, walk on a bare pavement which you continuously feel with your cane and your feet, using the constant slide technique and staying clear of snow and ice at the edge of your route, including frozen surfaces which may obscure your guideline. If the route you are following has a coating of fresh snow, you should be able to feel with your cane the firmer surface beneath, as well as a guideline to follow.

Walking conditions can change dramatically from one day to the next, resulting, for example, from a heavy snowfall or from wet surfaces freezing over. Besides remaining informed of weather reports, you should try to find out from a sighted person about the new walking conditions. You can then decide whether to venture forth carefully on your own, or to go out with a sighted guide, or to postpone your walk until conditions improved. Beware of ice under foot for you may easily slip, fall and injure yourself. If you cannot avoid ice, take short steps on it to maintain stability. Another problem is your cane sticking in the snow along your walking route.

In walking along a road that has been snowplowed, you may be following a snow bank which is usually easy to detect. If a car comes towards you as you are walking on the left, you may have to step sideways into the snow bank to make room for the car to pass, the road having been narrowed by a snow bank on each side. If loose snow, slush or chunks of ice should tend to deflect you from following this snow bank, you can use the three-point-touch technique, running your cane up the edge of the snow bank to ensure that that is the edge which you wish to follow. If a path in the snow paralleling the road has been cleared or pressed down by people's feet, you can follow it by using the constant-slide technique with your cane, as well as feeling the

cleared area with your feet. In general, try to keep moving forward in the correct direction when confronted by winter walking conditions.

You must be especially alert to the sounds of motor vehicles, since snow can tend to deaden those sounds. Wearing a warm hat over your ears can also interfere with your hearing. It is best, therefore, to wear loosely woven material over your ears.

Guide Dog

In place of the cane, there is the guide dog (or dog guide, technically speaking). There has already been discussed with respect to the guide dog the matter of going over the walking route in advance with a sighted person, landmarks and orientation signs, walking on the left side of roads with several exceptions, and crossing roads including road junctions. In the following discussion, it is assumed that both you and your guide dog are well trained in your respective roles and operate harmoniously as a team. (This is not always the case, and a blind person can only find out through experience how successful he will be with a guide dog.)

As every guide dog user knows, you as the master are in charge of the route which you walk with the dog on your left-hand side as you hold the dog's harness handle. You instruct the dog when to start forward, to turn left or right, and to slow down or speed up. You praise the dog each time he carries out your instructions correctly and admonish him when he does not. So, as with the cane, you should know where you are at all times and in what direction you are headed.

When you walk with your dog along the left side of a paved road, you depend upon him to keep you at the edge of the road, especially since, with the dog being on your left, you are less in a position to feel the edge of the pavement with your feet than you would be if you walked on the right side of the road. (This situation would be different if, instead of the pavement, you walked along a dirt shoulder of the road or an adjacent grassy strip.) If you and the dog should angle out into the road, he will get you back to the edge if he sees a car approaching. In road walking, a disadvantage of using a guide dog is that you and he occupy more lateral space than you would if you were using the cane.

With the guide dog, you have fewer orientation cues than you do with the cane because the landmarks you can detect are mostly limited to those you can feel with your feet. As a compensating factor, when you are walking along a road, the dog may alert you to a side route you habitually turn into, such as a driveway or other entrance, by pausing when you reach that point so as to see if you are going to instruct him to turn in there. In fact, when you know you are approaching such a destination, you can ask him to find it. The dog will conduct you around obstacles or pause at them so that you may work your way around them. He will keep you from walking into a ditch or otherwise straying from your evident route, whether it be along the edge of a paved road, the hardened part of a dirt road, or a driveway, a path, or a route complicated

by snow. He will not let you walk into the path of a moving vehicle, and he will pause on reaching a road to be crossed as well as in front of steps and curbs.

Many a blind person using a guide dog has found that his responsibility for taking care of the dog, including the feeding, grooming, exercising, airing and obedience training of the dog has been amply rewarded not only by the guidance which the dog has faithfully given him, but also by the companionship which the dog affords him.

Electronic Mobility Aids

Electronic mobility aids (or electronic travel aids) are another device which blind people can use to help guide their walking. Except for the laser cane, they are used in addition to the long cane or the guide dog. These battery-powered devices emit ultrasonic beams (infrared rays in the case of the laser cane) which, when striking nearby objects, are reflected back and cause the device to sound or vibrate. In this way, the blind person detects obstacles or landmarks along his route. The lack of a sound or vibration will indicate open space.

Perhaps the most useful device is the laser cane which is shaped and used like the long cane and which has the added feature of detecting drop-offs such as steps and curbs. Other devices have such names as the Binaural Sensor, the Mowat Sensor, the Path Sounder, the Oscar Range Finder (has computer and voice synthesizer indicating distance to object), the Sensory Six and the Polaron. They are held in the hand or hang on the chest, or are mounted on spectacles that you wear.

These mobility aids are used by few blind persons. They are expensive, require considerable skill and training for their effective use, and are more suitable for developed areas than for the country.

CHAPTER 2

The Sighted Guide for Outdoor Walking

A sighted guide is a person with normal vision who guides you as you walk beside him or, less often, as you walk behind him. You usually hold his upper arm. This Chapter deals with your walking with the guide out of doors, along paths, driveways and roads. The next Chapter will deal with your walking with a sighted guide along hiking trails.

A sighted guide provides the easiest and most reliable way for your getting around under your own power. He takes charge of your walking route and all you need to do is follow his guidance, and he provides you with companionship. Of course, this method of guidance makes you dependent upon another person as contrasted with using the cane or guide dog. Walking beside your sighted guide requires greater lateral space than when you walk with the cane.

The standard technique is a simple one. You hold lightly the back of the guide's upper arm just above the elbow and you walk beside him and one half-step back. You usually walk on his right side, your left hand holding his right arm, but you can walk on his left, your right hand holding his left arm. The guide sets the pace at a mutually satisfactory rate.

The guide must be alert to leave enough space for you to walk beside him, clear of any obstacles or other unduly rough places under foot. If there are obstacles which cannot be avoided, he warns you, as appropriate, to duck under them, to brush them aside with your forearm extended in front of your face as in the case of protruding branches, or to step over them if they are under foot. He also tells you when to pick up your feet in rough sections. He will alert you to up or down steps, and to pronounced up and down slopes, and he will tell you when to go behind him for narrow places. Unless you are turning around, he need not alert you to changes in direction which you can detect from holding his arm.

It is helpful if the guide tells you when to take his arm and when to let go of it. He can facilitate your taking his arm by standing next to you on the proper side. If during a walk you are to let go of his arm temporarily, and are not to remain standing next to him, he can put you in contact with a stationary object and thus "anchor" you until he resumes his guidance. Otherwise, he can help you find a place to sit down, such as a bench or rock ledge, by placing your hand on the back of it or on the seat. Alternatively, you may feel the front of the seat against your legs and then turn around and sit down.

If you are walking along a route, the smooth part of which is wide enough for only one person, it is best that you walk there and that your guide walk next to you on the rougher surface. You can, of course, walk behind him if desirable.

An inexperienced sighted person will tend to take you by the arm to guide you for a short distance. If this happens, you can politely tell the person that you will take his arm rather than vice-versa. To facilitate this procedure, you could reach around with your free hand, take his wrist or forearm and remove his hold on your arm, and then move your freed hand up so as to hold his same arm.

For narrow places where there is not room for you and your guide to walk abreast, there may be enough room for you to walk partly behind your guide, as he indicates, with no change in your arm hold. Otherwise, you will need to walk fully behind your guide, as will now be described. You go behind him and walk there until you return to his side. You do not lose physical contact with him during this procedure, but continuously hold the back of one of his arms with one of your hands. While walking behind him, it is best that you hold his right arm with your right hand, or his left arm with your left hand. (Alternatively, you could hold the outer edge of one of his shoulders.) For this purpose you will shift hands when you go behind him and shift back again when you return to his side. While walking behind him, your arm should be fully extended so that you will not walk on his heels.

For moving behind your guide and returning to his side, he may give you verbal cues, such as "go behind me" and "come beside me." Otherwise, he can give you these cues by moving in back of him the arm you are holding, and then keeping it there while you hold it from behind, and finally moving it back beside him when you are to return there. A convenient way for him to hold his arm behind him is to place the back of his wrist in the small of his back, fingers pointed down. This has the advantage of keeping you farther behind him and less likely to walk on his heels than you would be if he kept his arm at his side. If you are walking behind your sighted guide, when he opens a door for you both to pass through, he can tell you whether one pushes or pulls the door to the right or to the left, so that you may put out your corresponding hand to support the door and close it behind you.

The procedure for walking behind your guide and holding his arm is recommended only for short distances. If you have to walk behind your guide for a considerable distance, you may wish to use the guiding stick method, described in the next Chapter, by which you and your guide hold the opposite ends of a stick with your corresponding arms hanging at your sides.

Whether you are stationary or walking, if you transfer from one side of your guide to the other, you should not lose physical contact with him. You continuously hold one of his arms as you go behind him and come up on his other side, shifting your hands accordingly as between his two arms. If, when walking beside your guide, the two of you wish to turn around, he can pivot in place while you walk in a semi-circle beside him or, if space is limited, you can drop his arm, the two of you turn towards

each other into the opposite direction, and you then hold his other arm. Except for this turning around, your guide should always remain facing the direction of your travel, whether you are walking beside or behind him.

It is possible for you to use your cane to detect obstacles, curbs, steps, and so forth, while walking beside your guide and holding his arm for guidance. However, if you have a competent guide, bringing a cane along would seem to be an unnecessary encumbrance, especially for road walking.

You and your guide should walk along the left side of a road facing traffic, as pointed out in the previous Chapter for walking with cane or dog. You will normally be walking on your guide's right, which is the traffic side, while he keeps to the left edge of the road and assures that you get out of the way of traffic when necessary. You and your guide should stop walking and stand at the edge of the road to let traffic pass when it is advisable because of insufficient walking space outside the traffic lane. Sometimes you and your guide, or at least the latter, may be able to walk along a dirt or other surface adjacent to the pavement. For dirt roads, it is best that you and your guide walk on the part of the road where the surface is firmer, as mentioned in the previous Chapter. The guide conducts you across roads and road junctions, taking the proper precautions.

When walking with your guide, you may want him to keep you informed of your location and to describe your surroundings and points of interest that you pass. Nevertheless, this activity for your guide, added to the responsibility of guidance and the cues that he gives you, should not become an undue burden on him or detract unnecessarily from his enjoyment of the walk.

A variation of the standard technique for holding the guide's arm can be applied in the case of cold weather when your guide is wearing bulky clothing and you are wearing gloves or mittens, making it more difficult for you to hold the back of his arm. In this case, you can slip your hand inside his upper arm and hold the side or front of it, or you can hold the inside of his forearm which he holds up parallel to the ground. You may wish to hold the front of his upper arm at other times as well, which would be more personal than holding the back of his arm.

Other Guiding Techniques

These are techniques much less frequently used and providing less guiding control than the standard technique of holding the guide's arm. At the same time, they are less physically encumbering upon the guide.

There is the technique of what may be called the "short guiding stick" which you and your guide carry between you. You hold the stick a little behind the guide's hand with the arm of each of you hanging naturally at your side. You walk beside him half a step to the rear, as in the case of holding his arm. You can use for this purpose the

full-length guiding stick normally employed for walking behind your guide in trail hiking, but it is more comfortable to use a shorter stick. If you need to go behind your guide for a narrow section, you can shift the stick to your other hand and you and your guide can use it as a regular guiding stick as you walk behind him. If the stick is too short for that purpose, you can hold the guide's arm from behind while he holds the stick. This short guiding stick technique is less smooth than your holding your guide's arm. Also, the technique is awkward if the level of your hand at your side is considerably higher or lower than that of your guide.

Two other guiding methods may be mentioned which require more lateral space and provide less guidance control than does the short guiding stick. One is for you and your guide to hold between you a short loop of rope as you walk side by side, your adjacent arms hanging down naturally. If you need to go behind your guide for a narrow place, your guide can drop the loop which you continue to hold with one hand while you hold the guide's arm from behind with the other. The other method is for you to hold the guide's hand as you walk beside him. This would only be appropriate for a friendly couple.

Finally, there is the matter of your walking with a sighted companion without any physical connection between the two of you. To give you a greater feeling of freedom, you could ask him to walk beside you but separate from you, and to tell you, when necessary, when to go more right or more left. For this method you would need a wide, smooth route which is relatively straight and, if a road, has relatively little or no motor traffic.

For your sighted companion to have the least responsibility for your guidance, you could use the cane or guide dog to guide you while he walks beside you. This would be appropriate for a road with little traffic where you would follow its left edge and your companion would walk on your right. He could go behind you when traffic passes. The same technique might be employed on a broad path. (If you wish to be guided by a sighted person and at the same time bring your guide dog along for the walk, you could walk on the person's left and the dog could walk on your left at heel.)

Group Road Walking

Walks along roads by groups of blind persons and their sighted guides are carried out by some summer camps and other organizations. (They have been called hikes, but this term is best reserved for walks along trails on a natural surface as described in the next Chapter.) Such a group should walk in line along the left side of the road, facing oncoming traffic on that side. Ideally, the group should consist of pairs, each with a sighted person guiding a blind person at his side with the standard technique. If there are not enough sighted guides for this pairing, a guide could walk with a blind person on each side of him, each of whom holds his adjacent arm. This, however, requires more lateral space. Alternatively, while one blind person walks beside the guide, another blind person could walk behind him, he and the guide holding the

guiding stick (described in the next Chapter). The leader could authorize a legally blind person with some useful vision to walk without a guide, or even to act as guide for a blind person with no useful vision, if the leader considers that it would be safe to do so. Also, a blind person could be permitted to use his guide dog for the walk. The use of a cane for guidance would be less desirable for group walking.

The leader of the group is a sighted person who walks in front where he sets the pace. He is responsible for seeing to a satisfactory pairing or other alignment of the members of the group. He looks over the members to see that they are adequately clothed and are wearing proper foot gear (not beach sandals, for example). He insures that supplies which should be brought along, such as drinking water, first aid equipment, insect repellent and food, if lunch is to be eaten, are carried in one or more day packs. He has, as an assistant leader, a sighted guide who walks at the rear of the group and allows no one to get behind him. Before starting, the leader should inform the group concerning the length of the walk, the route to be followed and its destination, and any points of interest to be passed along the way.

The leader should be on the road side of his walking companion, and the latter should best be a person not requiring a guide so that the leader may have greater freedom of movement. The assistant leader in the rear should also be on the road side of his walking companion. During the walk, the leader looks behind him periodically to ensure that the group is not getting too strung out along the road. The road being followed should be in the country or in an area with little development, with only light motor vehicle traffic. When such traffic approaches the group from the front, the leader should turn and alert the members so that they will walk as far to the left as possible. If the road is narrow, and especially if some members are walking three abreast, the leader may have the group stop and stand at the edge or off the road until the traffic has passed. If motor vehicles approach from the rear, which would be on the farther side of the road, the assistant leader in the rear could alert the group by calling ahead. During the walk, the leader may have the group stop at appropriate intervals for a short rest and for drinking water and attending to personal needs.

If the group is to cross from one side of the road to the other, this should be done by all members together at the signal of the leader. Such a crossing could be to avoid obstacles along one side of the road, to reach a destination on the other side of the road, to reverse direction along the road (the front and rear pairs exchanging positions), or to increase visibility of oncoming traffic when the group approaches a sharp bend in the road. If the group is to continue forward past a lateral road at a junction, each sighted guide should cross with his companion only when he sees it is safe to do so.

Either before the walk starts or early in the walk as the situation develops, a large group might be divided into two: a forward group having the faster walking members, and a rear group for the slower ones. The leader would be at the head of the forward group, and he would have sighted assistant leaders to head the rear group

and to be at the rear of each group. Each group would remain together during the walk and would perform its own traffic alerts. The rear group could walk a shorter distance if it is a round-trip walk without lunch.

A group road walk is usually a round trip, returning to the starting point. For a long walk, the outbound part of it could be to a designated place for lunch, such as an area with picnic tables. As a variant, a group could walk to a destination, such as a town, and later be picked up and driven back to its starting point. If during the walk any member feels that he cannot continue for the full distance, the leader can authorize his walking back to the starting point accompanied by a guide. For a long walk, a vehicle may be sent along the route to pick up any member dropping out of the walk, and to carry provisions for lunch, if such is planned.

Steps and Car Transportation

For your outdoor walking with your guide, you may be going up or down steps and you may often be driven in a car to your walking area and back again. Descriptions of these procedures follow.

When you and your guide, walking in the normal position, reach steps or a curb, he should pause a moment and tell you what to do. This could be to step up or step down, or to take two or three steps up or down. If the step is only two or three inches high, the guide may call it a small step. If there are more than two or three steps, he need not count them, but can say that there are several steps or a flight of steps up or down. The guide then steps up or down ahead of you, and if there are more than one step, he remains one step ahead of you as you proceed. When he has completed the last of a series of steps, he pauses until you have stepped up or down beside him. As you do so, he could say "last step." The two of you then continue walking in the normal position. Your guide can tell you if there is a hand railing at the edge of the steps in case you would like to use it, especially if the steps are irregular or curving. If so, your guide can help you find the railing with your hand. If you are using a cane while walking with your guide, he need not give you verbal cues regarding steps or curbs, which you will detect with the cane.

With regard to your getting into a car, your guide should put your hand on a recognizable part of the car from where you can feel your way to the door handle and open it. Otherwise, your guide can open the door and place your hand on top of it. It is best to feel the car seat with your hand before sitting down on it. You may wish to take your seat in the normal manner, especially if you are familiar with the car, but a more careful way of getting in is to sit on the seat with your feet outside on the ground, and then turn forward and swing your legs into the car. You will not be able to do this, of course, if you are to sit in the rear seat of a two-door car. Before you close the car door, you should announce that you are going to do so. At the end of the drive, the driver should tell you when to open the door and should warn you of any danger of hitting into an adjacent car if you open the door all the way. Before

closing the door after you have gotten out, announce that you are going to do so. If you are carrying a cane (not folded), bring it in beside you after you are seated; and on getting out of the car, put the cane outside first. Do the same with a guiding or hiking stick.

CHAPTER 3

Trail Hiking and Camping

Hiking trails go through the forest on a natural surface of earth, rock and plant materials. They may climb hills and mountains, go along rocky crests with sweeping views, cross streams, enter ravines, and pass by ponds and lakes. A trail may be as narrow as a foot path or as broad as a wood road once used by four-wheeled vehicles. It may be smooth or rough, dry or wet, and level or steep. Trails open to the public go through public lands, such as national and state forests, and through private lands with the permission of the landowner. They are usually marked by painted blazes or by wooden or metal markers affixed to trees. They are maintained by public agencies and private organizations, especially hiking clubs. Most of them are described in guide books put out by these organizations.

Your trail hike as a blind person may be as short as a mile or two in the morning or afternoon, or it may be an all-day hike of perhaps five miles or more. Climbing a mile of a steep, rough trail will take far more of your time and energy than walking a mile of a smooth, gradual trail. For an all-day hike, you would carry a pack on your back containing lunch and other items. The most ambitious undertaking would be a backpacking hike lasting two or more days, in which you camp at night along the trail and carry a backpack containing food, clothing, a sleeping bag and other things.

There is no reason why you, as an able-bodied blind person, cannot undertake trail hiking. You can start in on short, easy hikes, and build up to longer, more difficult ones. You and your sighted guide can select the trail route to be taken in accordance with your past experience, physical condition and preference. As you hike, you have the sense of being in the heart of the natural world, removed from roads, traffic, development and other works of man. Your sighted companion can describe to you during the hike the views, beauty spots and other points of interest along the route. If you had been a hiker and lost your sight in recent years, you can again hike the trails that were familiar to you and picture your surroundings in your mind's eye as you recall them.

It is recommended that you use the sighted guide for your guidance in trail hiking rather than the cane or guide dog. Your trail hiking may be mostly single file which means that you walk behind your guide. Two recommended methods of guiding in this position will be described in this Chapter. One, probably the better one, is the guiding stick which you and your guide hold at your side. The other method is that of the tether which is a rope attached to your guide, the end of which you hold in front of you. For hiking along a trail behind your guide, it would not be practicable to depend upon holding your guide's arm or his pack. The rate at which you hike under differing trail characteristics should be worked out between you and your guide, especially in accordance with your preferences.

For the trail which is broad enough, such as a wood road, and which is not too rough, you could walk beside your guide, holding his upper arm in the usual manner, or holding the guiding stick between the two of you. These two methods were described in the previous Chapter. Holding a short loop of rope between the two of you, also described in the previous Chapter, would normally not provide enough guidance control to be satisfactory here. The guide should warn you of any obstacles or rough or wet places in your path. For sections requiring single-file hiking, you would go behind your guide, using the guiding stick if it is at hand, or holding his arm or pack if it is just for a short distance. As indicated in the previous Chapter, the guide gives you the necessary cues for when to go behind him and when to return to his side.

The Guiding Stick

This stick is held at opposite ends by you and your guide as you walk behind him, each of you holding it on the same side, whether right or left, with your arm hanging naturally at your side. The stick should be sturdy, straight and reasonably smooth. So as to provide maximum guidance control, keeping you directly behind your guide, the stick should be only long enough to avoid the possibility of your walking on your guide's heels when using it. A stick measured from the ground extending to about your hip level would therefore be recommendable. However, if you are to use the guiding stick as a hiking stick at certain places along the trail, you may prefer to use a stick of the greater length of a normal hiking stick, as described hereafter. In that case, when using it as a guiding stick with your guide holding the front end, you had best hold the stick a few inches forward from its rear end as you walk behind your guide. You could pick up a suitable stick in the woods to use as a guiding stick and another one to use as a hiking stick if desirable, trimming each one to the proper length and smoothness and keeping it for repeated use.

The Hiking Stick

In addition to the guiding stick, you may find it useful to have a hiking stick, especially for trails with rough or steep sections. The hiking stick is similar to the guiding stick except longer, perhaps as long as your long cane. You hold it like a staff at its upper end at a comfortable level. You use it for support and balance, normally grounding it at about every third step, but more frequently when needed. You can also use the hiking stick to feel out logs, rocks and up and down steps in your path. Simply carry the hiking stick for easier sections of trail where you do not wish to use it, whether you are walking behind or beside your guide. When walking behind your guide, you and he would hold the guiding stick on the opposite side from that of your hiking stick. If at any time when using the guiding stick you find yourself holding it farther ahead than its normal position at your side, you can ask your guide to slow down so that you can keep the stick in its proper position. It is best that your guide not use a hiking stick in addition to yourself. With his holding the guiding stick with one hand, he should keep the other hand free for helping you with it when needed.

Hiking Techniques With the Guiding Stick

As you walk behind your guide using the guiding stick, he warns you of any obstacles or difficult places in your path which you need to step over or around, or where you need to tread carefully. These could be rocks, logs, mud, wet places, ruts, roots, stones and the like. He warns you of projecting branches at the head level, which you should duck under or push aside with your forearm extended in front of your face so as to protect it. If he warns you of a tree trunk leaning out over the trail or standing partly in the trail, you can likewise extend your forearm in front of you to ensure that you avoid this obstacle. He warns you of narrow places, steep ups and downs, and trees and drop-offs at the edge of the trail which could pose a hazard, letting you know when to keep right or keep left. If, for example, you are following a bend to the left in a narrow trail where a tree stands at the edge of the bend, he should ensure that you keep to the right lest you cut the corner and collide with the tree. He can show you where to take a pronounced step forward or sideways across mud or water. The guide can tell you when you can resume normal walking after you have passed difficult places. He can let you know if you tend to walk too far to the right or the left when holding the guiding stick so that you may correct that tendency. If he should move the guiding stick from one hand to the other, he should let you know so that you may do likewise, the two of you always holding the guiding stick on the same side.

In place of giving you certain verbal cues, if you and your guide prefer, he could give you certain signals with the guiding stick. He could, for example: shake the stick from side to side to indicate rough places where you are to pick up your feet; move the stick up or down to indicate a steep up or down slope; exert pressure on the stick to one side or the other so as to keep you to that side; and move the stick forward to indicate that you are to move up for close guidance, as described below. In any event, as you and your guide gain experience together, the verbal cues and other signals and assistance which he gives you should be limited so that you and your guide can have as enjoyable and relaxed a hike as possible. In developing an effective operation between you and a person who has had little or no guiding experience, much will depend on your showing him how you are to be guided.

When you need closer guidance and support, such as for narrow or rough places with obstacles, or up and down slopes, you can move closer behind your guide, sliding your hand forward along the guiding stick, and holding the back of his arm or his pack with your free hand, while avoiding walking on his heels. At the same time your guide could drop his end of the guiding stick, which you would use as a hiking stick while thus walking at close quarters. In this case, you should be holding the guiding stick on the same side as you would the hiking stick. If you are already using a hiking stick, you could let go of the guiding stick, while the guide holds it, and then hold his arm or his pack with that hand. Your using a stick for hiking support while holding your guide's arm or pack from the rear will help relieve the pressure on your guide and avoid the possibility of throwing him off balance at difficult places. Your guide can let you know when to begin and end the guidance at close quarters. Also, you may initiate close guidance when you

find that conditions warrant it. For negotiating steep down steps or down slopes, you and your guide could turn sideways with you beside him and then sidestep your way down. Assuming you both turn right, which would be the usual direction, you would hold his upper arm with your left hand while you hold the guiding or hiking stick with your other hand for ground support.

There may be steep places which your guide should first negotiate separately from you and then help you follow. For example, your guide could make one or two long steps downward and then turn to help you feel with your stick where to place each foot while at the same time offering you his arm or hand for support. Here you might sidestep down. Also, for getting up a steep place, the guide could help pull you up by holding your hand or by pulling on the end of the guiding stick while you hold the other end. Otherwise, the guide could place your hand on a small tree trunk or limb so that you can pull yourself up, or he can place your hands on a rock for that purpose. For a steep descent down rocks or an embankment, at your guide's suggestion you could ease yourself down in a seated position, your hands supporting yourself on either side. If, during a maneuver at a difficult place along the trail, your hands are otherwise occupied, your guide can hold by himself the guiding stick or your hiking stick or both.

If you and your guide encounter a section of trail encumbered with water, mud, or blow-downs, you may need to skirt it by your guide selecting the least difficult route to follow on adjacent terrain at one side of the trail or the other. This may involve bushwhacking through woods with your walking as close behind your guide as possible, stepping over any fallen timber and pushing aside any plant growth blocking the route.

Crossing a brook may be difficult. If a brook is very narrow and can be crossed with one big step, your guide can help you place your foot for launching that step. If there is an established log bridge across the brook, you can walk behind your guide using the previously described technique of holding the back of the guide's arm or his pack with one hand, while you and your guide continue to hold the guiding stick. If the bridge is a make-shift log or two, you and your guide may be able to cross it sideways, your holding his adjacent arm with one hand and a stick used for hiking support in the other. If there is a narrow walkway of logs or planks to be followed along a wet section of the trail, you could walk close behind your guide or walk sideways with him, as described in the previous two sentences. Your biggest challenge comes in crossing a brook on stones or rocks. As your guide crosses ahead of you, you stay in contact with him by holding his arm or hand, or where that is not possible, by each of you holding the guiding stick. With your other hand you hold the hiking stick for support, which you anchor in the bed of the brook with each step that you take. The stones you step on while crossing should be large enough to accommodate both your feet, side by side, and should be within easy stepping distance of each other. The guide helps you feel with your hiking stick each stone you are to step on. You then place one foot on it and bring the other foot up next to it and continue in that manner. If there are not adequate stepping stones for crossing the brook, you will have to ford it. You can then roll up your pants and either go barefoot, if the bottom is not too rough, or wear your hiking boots without your socks to keep the latter dry. For carrying your boots, tie their laces together and carry them over your shoulder,

or around your neck, or over your pack. On crossing the brook, if the bottom permits, the guide can have you go beside him, you holding his arm with one hand and a stick in your other, which you anchor in the bed of the brook as you cross; otherwise, you will have to walk close behind your guide, holding his arm and your stick.

The Tether

As an alternative to the guiding stick, you and your guide can use the tether. This is a rope which is best if affixed around the waist of the guide and then extends from the center of his back to a looped end which you hold in front of you as you walk behind him. If the guide is carrying a day pack, it should be high enough on his back so that it does not interfere with the tether. However, if he is carrying a backpack, the rope should be tied to a cross-piece of the pack frame as near the waist level as possible.

You hold the loop end of the rope in front of you at the waist level so that the rope extends as straight and level as possible from the center of the guide's body to the center of yours. This will help you walk directly behind the guide, but will not prevent the possibility of your getting off to one side or the other. If you have a tendency to do this, your guide can let you know so you may correct it as much as possible. While hiking, you should keep the rope taut as much as you can, and, of course, the rope should be long enough so that you do not step on your guide's heels. You will find the most comfortable way for holding the tether is for your upper arm to be at your side and your forearm next to your waist. Your hand holding the loop in front of your belt buckle can move forward and back in accordance with the hiking movements of you and your guide. The guide can tell you each time he stops his forward movement so that you can stop in time without bumping into his back.

With the tether, you use the guiding techniques previously described with respect to the guiding stick to the extent they are applicable. You, of course, may use the hiking stick with the tether, and your guide may also carry a hiking stick, as the tether leaves both his hands free. If you are in a maneuver which does not use the tether, you can hold your end of it against his arm or pack, or he can tuck it into his pocket or belt, depending on the maneuver.

While the tether may pull somewhat on the guide's waist, he may find it less of an encumbrance than the guiding stick. However, from your standpoint, the tether is more wearing to hold over the long run than the guiding stick, and with its lack of rigidity, it provides less firm guidance than the stick.

The Cane and Guide Dog for Trail Hiking

As stated earlier, the sighted guide, rather than the cane or guide dog, is the recommended method for your trail hiking. This is especially true for trails with rough or steep sections and for the longer hikes. If you do use the cane or guide dog for your

guidance, you should hike with a sighted companion. Assuming there is insufficient room for him to go beside you, he could walk in front of you or behind you, alerting you to any obstacles to be avoided and ensuring that you do not get off the trail. (If you wish to have a sighted guide and bring your guide dog along as well, you could have the dog walk beside you at heel if there is enough space.) As an exception, you might wish to hike alone, using the cane or guide dog, on a trail that you have carefully gone over with a sighted companion. Here the trail should be a relatively easy one of moderate length where there is little or no chance of your getting off the correct route, or of your injuring yourself in any way.

Some blind persons and organizations, stressing the importance of the blind being independent and self-reliant, would favor the use of the cane or guide dog for trail hiking, with or without a sighted person accompanying a blind hiker. The sighted guide technique, with guiding stick or tether, set forth in this Chapter, is recommended for reasons of safety and practicality. At the same time, as stated in the Introduction, to the extent that a legally blind person has some measure of useful vision, the less dependent he will be on sighted assistants. In any event, your desires as a blind person for safe and enjoyable trail hiking, together with your level of experience and physical capabilities, should determine the hiking techniques that you use.

Clothing and Equipment

You, and those hiking with you, should be properly clothed and equipped for your hike. It is best to wear sturdy leather hiking boots or shoes with good-grip soles. They should be treated with a waterproofing preparation, such as silicone. For easier hikes on dry trails, sneakers may suffice. Wear a pair of socks with some thickness to cushion your feet and preferably with some wool content for warmth and ability to absorb moisture. Inside these socks you could also wear a pair of thin smooth socks. If any incipient blisters or tender spots develop on your feet, cover them with moleskin or band-aids. Wear layered clothing that you can take off or put on as you get warm or cool, with a windbreaker or waterproof garment on the outside if the weather so indicates. If your trail is apt to have encroaching growth along it, especially briars or poison ivy, it is wise to wear a long-sleeve shirt, long pants and gloves, no matter how warm the weather. For a day hike lasting from the morning into the afternoon, you should carry a pack containing lunch, including high-energy food; a container of water; clothing that you do not wear during all of the hike, such as a hat, sweater or extra socks; insect repellent, and tissues. You, or a sighted member of your party, should carry a first aid kit, and the latter should also carry a trail map, a trail guide if available, a compass, a knife, a flashlight, and matches. For shorter hikes, these items may be reduced as appropriate.

Group Hikes

Organized group hikes for blind persons and their sighted guides may be the easiest way for you to be involved in trail hiking. Hikes of this nature are organized by certain summer camps and by other organizations and programs for the blind. Also, arrangements could be made for a local organization of blind persons to provide the blind participants for hikes while a local hiking organization provides the leadership, the sighted guides and the transportation for the hikes. The participants of these hikes are pairs of blind persons with their sighted guides, and perhaps some additional sighted persons.

Except for hikes along broad trails where the blind person can walk beside his guide, each pair should use the guiding stick or tether, with one or two hiking sticks as desired and appropriate. If conditions permit, and the leader agrees, a blind member of the group could use a cane or guide dog with a sighted hiker walking in front or behind him.

The hike leader is a sighted person who is familiar with the route and walks in front. He has planned the hike in accordance with the capabilities of the participants and has arranged for any necessary transportation to and from the hiking route. He ensures that the participants are adequately clothed and supplied. At the start, he tells the participants the length of the hike and the route to be followed. He may allow for some flexibility in the route to be taken, in accordance with the preferences of the group and any unexpected developments during the hike. He sets a steady pace which is comfortable for the group, usually guiding a blind person as well. Bringing up the rear is another sighted person, called the "sweep," who insures that no one in the party gets behind him. So at any point in the hike, when the leader can see the sweep on the trail to the rear of him, he knows that all the participants are present and accounted for. The sweep may guide a blind person, but if there is an additional sighted person in the group not paired with a blind person, it would be well to designate him as the sweep. The hiking party should stay reasonably close together during the hike. This will usually happen if each pair of hikers stays within sight of the pair in front of them. If any hikers tend to fall back, holding up those behind them, they can move to the rear and hike in front of the sweep, who, together with the leader, will make certain that they catch up the next time the group ahead comes to a stop. The leader ensures that everyone takes the correct route at trail junctions.

The group makes stops during the hike for purposes of rest, attending to personal needs, adjustment of clothing and equipment, having views and other points of interest described, and having lunch. During these stops, the blind hiker can be helped by his sighted guide to find a place to anchor himself, such as a tree to lean against or a rock to sit on, or to find a place off the trail where privacy can be had. Hikers sometimes drink from brooks where no pollution is known to exist, but each member of the party should carry his own container of water or other beverage.

If any member of the group should become physically unable to complete the hike, a sighted member should conduct him back to the starting point or other nearer point of access to transportation. If a member becomes incapacitated so he can no longer walk, a

sighted member should remain with him while another sighted member of the group goes to seek the nearest emergency assistance.

Most day hikes end at their starting point, the members either making a round trip hike where they retrace their steps, or a circuit hike where they use more than one trail. Otherwise the party could hike a through-route, finishing at the other end. In that case, one or more cars would have to be parked at the finishing point in advance of the hike. Alternatively, drivers of one or more vehicles could deliver the hiking party to the starting point and drive to the finishing point at the estimated finishing time to pick up the group. The group should not depend upon hitchhiking for getting back at the end of the hike. If part of the hike is to be along a road, the group road walking technique described in Chapter 2 should be followed.

You, with your sighted guide, might wish to go on a hike of sighted persons organized by a hiking club or other outdoor organization. The problem here is that you might not be able to keep up with the sighted hikers, especially if the trail has steep or rough sections. So as not to hold up other members of the party, you and your guide could hike in the rear. You and your guide could go part of the way with the group and then perhaps continue on your own for a while, if you have fallen behind the group, before returning to the starting point where you and your guide should have your own independent transportation. If it is a round trip hike, you and your guide could wait on the trail to rejoin the group on the return leg of the hike.

Backpacking and Camping

Backpacking, which includes overnight camping by a trail, is more strenuous than day hiking. You should be a sturdy hiker to undertake a backpacking hike of any length or difficulty.

Your backpack is quite a bit larger and heavier than your day pack, and overnight camping can have its difficulties for blind hikers. But the challenge is there for the physically able and adventuresome. You will carry your lightest load when you camp out only one night. You could backpack alone with a sighted guide, who should be experienced and familiar with the route, or you could go with a group of sighted and blind backpackers. Here, at least the sighted members should be experienced in backpacking and camping. In your pack you should carry, in addition to food, clothing and the items previously mentioned for the day pack, a sleeping bag, an air mattress or foam pad, a ground sheet, a towel and toilet articles. You might share in the carrying of cooking, eating and cleaning equipment, and a tent or tarp if you will not be sleeping in a lean-to or other shelter. The sighted hikers may be expected to carry more of these items used in common than the blind hikers.

The techniques of trail hiking and the procedures for conducting group hikes, previously described, apply to backpacking hikes as well. As compared with day hiking, you may need more close guidance in backpacking, where you hold on to your guide's

pack from behind, or at least place your hand on it. Because of the greater load you are carrying, sturdier legs and a better sense of balance are required than for carrying day packs; and for steep and rough sections of trail, there could be a greater possibility of your falling and injuring yourself. On the other hand, you could take a relatively short, easy backpack hike to a campsite and return, doing any additional hiking from that campsite in the daytime, unencumbered by a loaded backpack.

The leader should plan on camping at a site which has a source of water, a fireplace, an adequately level area for pitching tents if they are to be used, and preferably a privy, and a place to shelter firewood from the elements, as trying to start a fire with wet wood can be most difficult. To avoid the inconvenience of having to prepare food and eat on the ground, it is well for the site to have one or more picnic tables, or a shelter with space for food preparation and consumption, or at least large logs to sit on. A more elaborate camp would be a cabin with a wood stove to cook on and bunks on which to put the sleeping bags. If possible, there should be assurance the planned campsite will not be occupied by others, or at least that there will be room for the backpacking group there. If an ambitious hike of several days is planned, more food and heavier packs will be required, and plans may have to be made for additional sites for overnight camping.

For what may be called semi-backpacking hikes, the group could spend one or more nights at a facility providing shelter, bunks, bedding, and meals. Here a good sized day pack will be sufficient for the hiker, which would contain the items for a day hike, along with more clothing and food for additional lunches, and overnight items, such as toilet articles, a towel, and moccasins.

Sufficient time must be allowed for adequate preparation for the backpacking hike before it is scheduled to start. The leader ensures that all the necessary supplies and equipment are on hand. He notifies the participants what they should bring along, and he distributes to them the equipment and supplies being provided them. To facilitate this procedure, all participants should assemble together so that their packs can be checked and the loading of them completed. The leader can see that the blind members are properly clothed and are given any assistance they may need. This could be in their rolling up their sleeping bag and attaching it to their pack frame, or in adjusting their pack to their body. If there is an opportunity before the hike for doing so, the blind members could be shown how any tents to be carried are pitched, and they could take a trial walk with their loaded packs.

The key to successful overnight camping is close cooperation between the blind and sighted members of the backpacking group. Just as the group hikes in pairs of sighted guide and blind hiker, such pairs could operate together during the camping period. If tents are used, their paired occupants should pitch them and take them down on departure. The participants unpack their packs, lay out their sleeping gear and pack up on departure. Designated pairs can perform chores for the group as a whole, including gathering and preparing firewood if a fire is to be used, fetching water from a nearby water source, preparing food and cleaning up after meals. Some operations are best done by the sighted members, notably starting and tending the fire, operating gas stoves and seeing to it that

the food is properly cooked and served, and that there is adequate clean up and safe storage of the food overnight.

Based on the preferences of the participants, the leader can make assignments for the pairings, the occupancy of the tents or sleeping arrangements in lean-tos or other shelters, and for the performance of the common camp chores. The leader should ensure that the members do not wash themselves or their equipment in a brook or lake but that washing is done in containers of water taken from those sources. He also ensures that on departure all the common supplies and equipment are loaded in the appropriate packs, that any leftover garbage or waste is carried out, that any fire is thoroughly extinguished, and that a clean campsite is left behind.

The blind participant should keep track of each of his personal items that he removes from his pack for both its use and later repacking. His sighted companion should show him about the campsite, including where he can go for his private needs. The blind person should then be able to get about on his own, using a guiding or hiking stick as a long cane if desirable. If there is no privy, the sighted person can help the blind member with the disposal of his waste in the digging and covering over of a hole or trench. He can help him locate any needed camping equipment, such as a container of water for washing up. In the operations of camping, the amount of help needed by blind participants will vary according to their capabilities and degree of blindness, but they should do what they can for themselves and the sighted members should facilitate their participation in the common chores of camping.

Nature Walks

There are self-guiding nature trails, also called interpretive trails, which are usually easy walking trails with signs and leaflets identifying and explaining plant life and other natural elements along the way. You can follow the trail with your sighted guide who can read to you the signs and the leaflet, and help you feel objects of interest within reach.

There are also nature trails for the use of the blind. A rope or other railing follows the trail for their guidance, and along it are information stations bearing descriptions in braille and sometimes also in print. Affixed to these stations or within easy reach, there are sometimes natural objects which are referred to in the descriptions and can be felt by the blind person, such as tree trunks, leaves and nuts. Blind persons should follow the rope or railing by hand in the forward direction only, the route of which should be a continuous one back to the starting point. A blind person being followed by another along the railing should inform the latter of his movement to avoid a possible collision. If a blind person in the lead is proficient in reading braille, he could read out loud the descriptions for the benefit of those following. As an alternative to braille, blind persons could listen to a recording of the descriptions, best accomplished by equipping each of them with a device such as a "Walkman" which plays a cassette tape. If the descriptions are also in print, the

trail could be followed as a regular self- guiding nature trail by a blind person and his sighted guide.

There are group nature walks conducted by a naturalist who explains and comments on the natural surroundings and their various elements for the benefit of the participants whom he leads on the walk. Especially fitting for blind persons are bird walks led by someone who can identify the various species of birds heard and seen during the walk. After the foliage comes out in the spring, even a sighted person will hear more birds than he sees. It will help you recognize the calls and songs of different kinds of birds by listening to recordings of them. For these group nature walks, you should be accompanied by a sighted guide whom you would walk either beside or behind, depending on the space available. He may carry binoculars for viewing the birds on bird walks.

CHAPTER 4

Tandem Bicycling

In tandem bicycling you, as the blind person, sit in the rear position where all you have to do is hold onto the handlebars and pedal. Your sighted guide pedals in the front position where he controls the movement of the bicycle. He is sometimes called the "front-ender" and you the "back-ender."

Unless you bicycle only on relatively flat terrain, your tandem bicycle should have gears to ease the amount of power you must apply for up grades. It is preferable that your bicycle with gears have ten speeds or more, the steeper the up grades, the higher number of gears desirable. With some tandem bicycles, the height of the handlebars cannot be changed, or they can be changed but the front seat and rear handlebars are affixed to each other and can only be raised and lowered together. Ideally, the two handlebars and the two seats should be adjustable independently of one another.

For efficient pedaling, it is recommended that the handlebars and seat for either position be at about the same level. For maximum efficiency, the seat should be in such a position that when you are seated upon it, the ball of your foot is on the pedal in the low position with your leg almost straight. Nevertheless, for tandem bicycling, it is easier for you and your guide to have your seats lower so that when you are seated your foot will reach the ground. You should not have to tilt the bicycle sideways for this purpose.

Tandem bicycles have traditionally been designed for couples-- the man, bigger and stronger than his companion, riding in the front and manning the controls, and the lady riding in the rear. Therefore, some tandem bicycles have the horizontal bar in front so that the front-ender must lift his leg over the bicycle to get on and off it, while the rear is the ladies position without the horizontal bar. Other models of tandem bicycles have the horizontal bar both in the front and rear. The bicycle most suitable for your use is the unisex model, having a similar slanting bar both in the front and rear, which you and your guide can easily put your foot over. Having the taller, heavier person in front provides greater cycling stability. What is more important, however, is that your guide be a competent cyclist, and that you and he apply equal pedaling power proportionate to your respective weights. The front and rear pedals turn together, so that if either cyclist eases up unilaterally on the pedals, it puts a heavier burden on the other. You should apply the ball of your foot, rather than the instep, to the pedal.

Regarding your dress, greater protection against possible injury will be ensured if you and your guide wear helmets. You should wear sneakers or other lightweight shoes, and if you wear long pants, you can protect your right pant leg from contact with the gear and chain mechanism by rolling it up or wearing a clip.

You should bicycle along the right edge of roads, as much out of the way of traffic as possible. You obey traffic lights and road signs, as do motor vehicles. You and your guide should get on and off your bicycle on the same side, normally the left side. The best way to start off is for each of you to be seated on your seat with your left foot on the ground. Your right foot is on the right pedal which is in the up position and slightly forward. Before getting on the bicycle, you can put the pedals in that position by moving the bicycle or the pedals backwards. To start off from your seated position, at the signal of your guide each of you push down on your right pedal, gathering momentum by initially pedaling strongly with both feet. You and your guide can help launch your start by each of you pushing off from the ground with your left foot. Your guide gives the verbal cues for slowing down and stopping. It is best to stop with the right pedals in the low position, with each of you putting your left foot on the ground.

If you and your guide have your seats in the high position, you will not be able to start off while seated. Each of you must start off straddling the bicycle with your left foot on the ground, and your right foot on the right pedal in the upward position. You each then rise to push down on the pedals and sit on the seat. Conversely, when you come to a stop, you each rise forward from your seat, supported by your right foot on the pedal in the low position, and then lower yourself to place your left foot on the ground. This procedure is, of course, more difficult than starting and stopping when seated.

While riding a bicycle, the guide steers and operates the brakes and the gears. He determines the rate of the pedaling, when to pedal faster or slower, and when to stop and resume pedaling. Whether or not he tells you of these changes, you will feel them with your feet. Your guide tells you when he is going to shift gears so that each of you will ease up on the pedaling while he does so, but you do not stop pedaling. He can tell you when you are starting uphill and downhill. He tells you when he is going to turn right or left, and then you or he gives the appropriate hand signal by extending the right or left arm. When necessary, he calls out to warn any persons who may be in the path of the bicycle. He will warn you of any obstacles to duck under, such as projecting branches. You should not rise from your seat to apply extra pedaling power for pumping uphill. If you should lose control of your pedals, inform your guide so that he may hold the pedals level while your feet regain their proper position. When you and your guide are walking beside your bicycle, which will normally be on the left side, while he holds the front handlebars, you will find it easiest to hold the rear of your bicycle seat with your adjacent hand so that you will avoid walking on his heels.

Before you and your guide start bicycling, it is best to check the air pressure in your tires with a gauge and, if needed, add air pressure to them with a pump. If the handlebars and seats are not at the proper height, you can help your guide adjust them with a wrench. When your tandem bicycle needs other maintenance, such as cleaning and lubrication, you can help with that work also. Your bicycle should carry, usually in a pouch attached to the seat, one or two wrenches needed for adjusting bicycle parts, a tire pressure gauge, and tire irons and a spare tube for changing a tire. If a need ever arises to repair a leak in a tire tube, a tire patch kit will be required. Your bicycle may carry a tire pump affixed to the frame. If the bicycle is to be left unattended in a place where it could be stolen, it

should carry a locking mechanism capable of attaching the bicycle frame to a fixed object, such as a post, or, somewhat less secure, capable of immobilizing the rear wheel by linking it to the frame.

Your tandem bicycling will be more enjoyable along paths and country roads where there is little motor traffic. Your riding surface should be as firm and smooth as possible, without loose materials, such as sand, dirt or stones. While riding, your guide can inform you of your surroundings and points of interest which you pass.

You may have the occasion to go bicycling with an organized group of tandem bicycles with sighted and blind cyclists. The sighted leader rides in the front position. He plans the route, designates the lunch site if there is to be one, and insures that any necessary supplies and equipment are carried. A designated sighted person rides in the rear. The latter allows no bicycle to get behind him during the trip, and he helps resolve any problems affecting cyclists in front of him. Each sighted cyclist should know the route to be followed and the location of the lunch site, if any. He may be provided with a map of the route, which for immediate reference can be kept in a holder affixed to his handlebars. The various cyclists of the group may get spread out for some distance and not always remain within sight of one another. For any turns along the route onto another road, it is a good idea for each sighted cyclist to wait, if necessary, before making the turn until the bicycle behind him is clearly in view. The leader should stop at convenient points to ensure that all the bicycles catch up, and to attend to any problems that may have arisen. There is less need for the leader to do this if a motor vehicle is to cruise the route during the trip, giving assistance to any participants who may need it, and carrying the group's lunch supplies when desired. For inexperienced blind cyclists, a trip limited to a morning or afternoon is advisable, when there would be less use for a vehicle.

An overnight group bicycle trip should be undertaken only by well-conditioned, experienced cyclists. Unless a vehicle is to carry what the group needs for its overnight stay, the bicycles will be more heavily laden than for a day trip. It should be kept in mind that the amounts which the participants can safely carry in the panniers, bags and racks of their bicycles is much less per person than what the single cyclist can carry on his bicycle. For a stay at a campground, a vehicle should carry the group's camping supplies and equipment. Without a vehicle, participants will need to carry their personal belongings on their bicycles and to stay at lodgings which provide sleeping accommodations and meals. Youth hostels provide such lodgings, except that a bicycling group must bring their own food, which they can prepare with the equipment at the hostel. For the overnight stay, the group should operate in cooperating pairs of the blind and the sighted, as in the case of backpacking camping mentioned in Chapter 3.

CHAPTER 5

Canoeing and Rowing

Paddling bow of a canoe, which is the front end, requires little skill, although you will need a sense of balance, particularly for getting in and out of the canoe. Your sighted guide paddles in the stern, which is the rear of the canoe, and he controls the direction and movement of the canoe. He should be an experienced canoeist. For the proper balance and maneuverability of the canoe, he should weigh at least as much as you do as the bow paddler. If you are heavier than he is, balance can be reestablished by a third person sitting as near the stern as convenient, or by carrying there objects of some weight. The occupants of the canoe should each have a life jacket or a floatation device, usually a cushion which can be sat on in the canoe if desired. It is recommended they wear canvas-type shoes with rubber soles. They should know how to swim and know what to do in case the canoe swamps or capsizes. Any white-water canoeing you undertake should be limited to short stretches of moderate rapids, and you should generally keep to flat-water canoeing on ponds, lakes, rivers and similar waterways.

To get into the bow position of a canoe from a dock or other parallel location, you should sit on the dock or similar surface, place your feet on the bottom of the canoe in front of the bow seat, hold the opposite sides of the canoe with your hands, and move onto the seat. Before getting into the canoe, leave your paddle on the dock within reach, or lean it against your bow seat out of the way. A third person on the dock can hold the canoe against it while you and your stern paddler get in, and also while each of you get out of the canoe afterwards. Lacking such a person, your stern paddler should hold the canoe for you, and you would then hold onto the dock from the canoe as he gets in after you and as he gets out before you. When you get out of the canoe, you will normally step onto the dock, preferably holding on to someone on the dock for support, which may be the shoulder of your stern paddler while he is crouched down holding the canoe. For added balance, you could hold your paddle erect on the bottom of the canoe as you stand up and then on the dock as you step up. Alternatively, if you feel more stable doing so, you can get out by holding onto the dock and kneeling on it, before standing up on it.

The other position for getting into or out of the canoe is from a beach or gradually sloping shore where the canoe is perpendicular to the shore. If the canoe is being launched with the stern end on the shore, you step in first and work your way forward to the bow seat, staying low and holding on to the sides of the canoe for balance and stepping over intervening crossbars and seats. As you do this, the stern paddler should steady his end of the canoe by holding it between his legs. An alternative method easier for you would be to step from the shore into the canoe at your seat and the stern paddler would then shove the canoe out into the water. If the canoe is to be launched backwards, with the stern in the water and the bow on the shore, you can hold it steady while the stern paddler goes back to his seat, and then you get in and turn around and sit on the bow seat.

However, before gaining your seat, you may need to push off from the shore with one of your feet, unless there is a person on the shore who can push the canoe out after you are seated. Before you get into the canoe, place your paddle against the bow seat out of your way. When landing perpendicular to the shore, your canoe will come in bow first, and so, leaving your paddle at the side of your seat, you will get out of the canoe first, stepping on dry land if possible. You should pull the canoe farther up on the shore and then hold it steady between your legs while the stern paddler gets out. For carrying the canoe short distances on land, with it in an upright position, the sighted stern paddler can carry the front end of it and you the rear end, the former telling you when to move more right or more left when needed.

Paddling is normally done in a seated position. For greater stability, you can lower your center of gravity by paddling in a half-seated, half-kneeling position. For kneeling comfort, a foam pad can be affixed to the bottom of the canoe or you can kneel on a cushion or article of clothing. Use this position especially for paddling in rough water, assuming your guide finds it safe to canoe under such conditions.

Your guide in the stern should know the various paddling strokes and when to apply them. While you in the bow will do mostly straight paddling, it will be useful for you to know the draw, pry and sweep strokes and how to back-paddle. For steady movement, you and your guide should normally paddle on the opposite sides, and he should synchronize his strokes with yours. He gives you paddling instructions as needed. These can be to start or stop paddling, to paddle at a faster or slower pace, to paddle on the other side, to backwater or to push your paddle against the bottom so as to help back the canoe off the shore or a shallow place. If the guide wants the canoe to turn sharply right or left, or to move laterally right or left, he can say so and leave it to you to apply the proper stroke, which could be the draw, pry or sweep stroke. He should then tell you when to resume normal paddling. Using the proper stroke effectively, you need not change paddling sides to help turn the canoe in either direction.

Your guide warns you to duck in case of obstacles which might hit you, such as branches projecting from the shore or a low bridge which the canoe is about to pass under. At your guide's suggestion, you may have to get out of your canoe into shallow water so as to help dislodge it from the bottom or from a rock or plant life. You may, of course, go barefoot in the water. But if the bottom is rough, you had best wear your shoes without your socks. Do not lose physical contact with your canoe during this procedure.

For a relaxed and enjoyable canoeing experience, do not feel obliged to paddle continuously, especially since your guide in the stern can control the canoe's direction without your paddling as well. Your guide can tell you about surrounding points of interest while limiting his canoeing instructions to those necessary.

The canoe may carry a third person, who should be sighted or at least have enough sight to be able to function without a sighted guide. He sits on the floor of the canoe or on a cushion facing forward between the bow and stern paddlers. He can use as a backrest a canoe crosspiece (thwart) with a cushion or other support in front of it. If desirable, he

can paddle too from that position, using the normal bow stroke. He should paddle on the same side as the bow paddler and preferably synchronize his strokes with the latter's. If needed, the stern paddler can tell him on which side to paddle and when he should start and stop paddling. For launching from and landing on a shore, he will, of course, be the second of the three occupants to get in and out of the canoe. On the dock he can be the person who holds the canoe against it while the stern and bow paddlers get in and out. He can also help the other two carry the canoe upright on the land. For each person paddling, the length of his paddle should normally be about chin high.

If you are an adept canoeist, especially if you had canoeing experience and then lost your sight, you might wish to try paddling stern while your guide paddles bow. This puts the burden on him of giving you what might have to be frequent instructions regarding the direction and movement of the canoe. Here, areas with obstacles, such as rocks, submerged logs, and narrow places, ought to be avoided.

If you and your sighted guide believe that you need some improvement in your canoeing, an experienced paddler can go along with you in another canoe. He may then observe your performance and give you helpful instructions.

A good way to take a day canoe trip is as a participant in a group trip organized for blind persons and their sighted guides by a summer camp or other organization. Here the same principles apply as for group hikes and group bicycle trips for the blind and their sighted guides. The leader is the sighted stern paddler of the front canoe and his assistant is the sighted stern paddler in a canoe remaining at or near the rear of the group. Here he can help the canoes in the rear, such as by encouraging lagging ones, assisting any that have run aground and correcting any not following the proper course. Two or more canoes could be paddled parallel to each other rather than single file, if there is ample room for this. If the sides of two canoes are about to come in contact with each other, the guide should warn the blind person so that the latter may keep his paddle and his hand on that side out of the way. In the case of a narrow or other difficult place along the way, or where alternative routes present themselves, such as around an island, the lead canoe establishes the proper course to take and each canoe follows it in turn. At such places, or otherwise periodically during the trip, the leader stops his forward movement until he is able to see all the canoes of his party. Also at this time, he can resolve any problems that may have arisen and have not been resolved by his assistant in the rear. The leader, together with his assistant, has helped launch the canoes at the starting point, and he leads the participants to the landing at the finishing point, as well as to any landings to be made along the way for purposes of rest, attending to personal needs, lunch, and undertaking a canoe carry when called for. He has initially planned the trip, designated the occupants of each canoe, organized the supplies and equipment, and arranged for the transportation to the starting point and back from the finishing point, which could be away from the starting point. For transporting the canoes, a vehicle or trailer with a rack accommodating multiple canoes is recommended.

A canoe trip of two or more days, involving overnight camping, is a more difficult and challenging matter. There are organized trips of this nature for blind persons and their sighted guides, but they are fewer than the day trips. Loaded in the canoe between you in the bow and your guide in the stern is your extra clothing, food, and other camping equipment and supplies, similar to what is carried on backpacking trips. Your canoe loaded for overnight camping will of course be heavier than for a day trip and so it will be less maneuverable, more apt to run aground in shallow water, and it will require of you more paddling energy and more effort for launching and landing. It is usually not recommended that your canoe have a third occupant, adding considerably more weight and requiring additional space. However, should there be one, he should be sighted or sufficiently sighted so as to be able to get about on his own. He would sit in the middle with the equipment and he could also help with the paddling. For launching the canoe from the shore, it should be loaded, if possible, while standing on the land before being pushed into the water. To avoid your having to scramble over the gear to get to your bow seat, it may be possible for you to take your seat there before the canoe is pushed into the water. Otherwise, the canoe could be launched backwards, stern first, in which case it would be helpful if there were a person on shore to help push the canoe out after you have taken your bow seat. If the water is very shallow, you or the stern paddler may have to wade out into it until the canoe is free of the bottom. For launching the canoe from a dock, it should be loaded with the equipment while standing in the water and being held next to the dock. Similarly, it should be unloaded in that position. If the dock has a ramp, the canoe could be loaded while standing on the dock and then be pushed down the ramp into the water before the occupants get into it. This procedure would be reversed when disembarking and unloading the canoe at the dock.

Your trip will have an added challenge if there is a portage or carry to negotiate. Here the members of the party must carry the canoes and equipment over land, usually along a trail, between navigable parts of the route. If there is a short, smooth carry, the empty canoe can be carried upright by the guide and blind person in the manner previously described. The two would then return to pick up the equipment, with the guide leading the blind person along the route. If the carry is short but difficult, such as down a steep slope around a dam, and there are two or more canoes in the party, the sighted members could carry the canoes upright, followed by the carrying of the equipment. For a longer carry, the guide would carry the canoe on his shoulders, usually with a yolk, with the blind person carrying what equipment he can. The latter can hold onto the rear end of the canoe for guidance as it is being carried. The guide, and the blind person if needed, would then return to pick up the remaining equipment. If such a carry is a difficult or unfamiliar one, the guide and the blind person, whom he would lead, could walk along it while carrying the equipment, after which the guide would return to pick up the canoe. The aforementioned procedures may be followed for a carry on a day trip, except that there being much less equipment involved than for an overnight trip, there would be a greater possibility of negotiating the carry in a single trip. If the canoe has a third occupant, which would increase the amount of the equipment carried, especially for an overnight trip, he should be able to carry his share of the equipment and, at the same time, guide the blind person along the carry when the guide is carrying the canoe. Also, he and the guide could carry the canoe upright for short carries.

Preparations for the trip and the procedures of overnight camping are similar to those for backpacking hikes previously described. The leader, with his assistant, organizes the supplies and equipment, arranges transportation to and from the canoeing area, determines the canoeing route and the campsites, and the make-up of the canoes. Commonly used items, such as food and cooking equipment, may be packed together rather than distributed among the packs of the individual members. A trip will usually consist of a number of canoes, and the canoeing procedures for the group should be similar to those for a day canoe trip previously described. But a trip could consist of a single canoe bearing the blind person in the bow and his sighted companion in the stern.

Perhaps the easiest type of trip would be first to paddle a moderate distance to the campsite, which could be on the shore or an island of a lake, unload the canoes there and occupy the site for camping out one or two nights, and then to continue with daytime paddling in lightened canoes. Such a trip would not go down a river, but would return to its starting point. The leader may select the paddling route for the day in accordance with the preferences of the participants and the time available. A more demanding trip would be one involving camping out for two or more nights at different locations with one or more carries along the way. The route would be down a river or through lakes and ponds with some connecting streams.

Rowing

Rowing a boat requires of you only moderate skill. While you man the oars, your sighted guide sits in the stern of the rowboat facing you and the direction in which you are rowing. He keeps his knees out of the way of your oars. When the boat is to go more to the right, he can say to you "right oar", which means to pull on the oar on your right, which is on your guide's left. Similarly, when the boat is to go to the left, he can say "left oar", which is on your left but on his right. He can vary these instructions by saying, for example, "a little right" or "hard right." For a little right you can apply more pressure to the right oar than to the left. For hard right you could pull only on the right oar, or at the same time, you could backwater with the left oar. You can apply this hard-right technique or a corresponding hard-left technique when your guide says to turn the boat around. When the boat has reached the desired direction, he can say "straight" and you then resume pulling equally on each oar. When you are rowing for some distance towards a given point, your guide should not have to give you frequent instructions to keep you precisely on course, but can just have you make a course correction from time to time as needed. He can also tell you if your normal rowing stroke has tended to take the boat right or left so that you can compensate for this tendency.

In your rowing stroke, you should pull on the oars together and not on one after the other. Your guide can let you know if your oar blades are not moving at the proper depth in the water. He can tell you when to stop rowing and when to backwater so that the boat will slow down at once, or will stop, or move backwards. The guide should ensure that the boat avoids obstacles and shallow or narrow places where there would be insufficient clearance for the oars. He should give you adequate guidance for maneuvering the boat

to a dock or other landing place. You should not change places with your guide or otherwise stand up in the boat except at the dock or at the shore.

For rowing, the oars should be fixed in their locks where they cannot rotate or slip. If they are not, you may have difficulty in keeping them in their proper position, their blades perpendicular to the surface of the water, and your guide may have to tell you periodically how to adjust the position of one or both oars. Before you get into the boat to start off from the dock or the shore, the oars should be already in the boat on each side of your seat out of the way of your getting in. Once in your seat, you fix the oars and oar locks in their places as necessary. When starting from a dock, you and your guide will need to push the boat away from it before you can engage your oar on that side. On landing, you should move the oars into the boat and if you are landing at a dock, first move the oar in on that side, your guide telling you when to do so.

Rowboats usually have a flat bottom and so are more stable than canoes, making it easier for you to get in and out of them. Regarding the procedures at the dock, a third person on the dock should hold the boat against it while you and your guide get in the boat on starting off and get out of it on landing. Lacking such a person, your guide on the dock holds the boat for you while you get in and also while you get out, and you, in turn, hold onto the dock from the boat as he gets in after you and gets out before you. A stable way for you to get into the boat is as follows: kneel where your guide indicates at the edge of the dock facing the stern of the boat, feel with your hand the seat you are to occupy as oarsman, place your adjacent foot onto the bottom of the boat on the stern side of the seat and ease yourself onto the seat, holding onto the boat and the dock as convenient. An even more cautious method would be to sit on the dock, put your feet onto the bottom of the boat and then move onto your seat facing the stern. If there is a third person present to hold the boat, you might adopt a less cautious method as follows. Stand with your guide at the edge of the dock facing the stern of the boat, and then step sideways into the bottom of the boat where your guide directs you, while you hold his arm for support and avoid stepping on the adjacent oar. Or else, you might step first onto the seat you are to occupy and then to the bottom of the boat. On landing at the dock, you will normally step onto it from the boat, preferably holding onto your guide or someone else on the dock. Otherwise, from the boat you could first kneel on the dock and then stand up on it.

In addition to your guide, you could carry another passenger in the boat, who had best sit in the bow rather than next to the guide in the stern. He could be the third person who holds the boat against the dock while you get in and out, leaving your guide free to assist you as needed. He should be a sighted person or, if legally blind, with enough vision to be able to get in and out of the boat safely on his own.

For launching your rowboat from a beach or other shore, the bow of the boat will be in shore. Normal procedure would be for the person who sits in the stern to get in first, followed by the oarsman who shoves the boat out as he steps in. On landing with the bow in, the oarsman would get out first and pull the boat farther on shore. It would, however, be easier for you to take your seat first at the oars and for the guide to shove the boat out and then to step past you to his stern seat. On landing he would again step past you to get

out of the boat and pull it up. It would be easier still if there were another person available on the shore to push the boat out and to pull it in. If your boat had a third occupant sitting in the bow, he would be that person, being the last person to get into the boat and the first one to get out. To launch the boat in shallow water, you may need to take an oar and push it against the bottom. In very shallow water, one or more of the occupants may have to wade in the water to get the boat launched as well as landed. On launching you will normally backwater with your oars for a short distance and then turn the boat into the desired direction. To land, it is well to row strongly to propel the boat onto the shore.

CHAPTER 6

Cross Country Skiing

Cross-country skiing, also called ski touring, generally requires more skill and physical energy than tandem bicycling, canoeing and rowing. For success, a good sense of balance is needed. You are accompanied by a sighted guide who normally skis on your left and who should be an experienced cross-country skier.

You will probably find that the most suitable area for your skiing is a cross-country skiing center (ski touring center) where tracks are set by machine. These should be clear-cut indentations in packed snow into which each ski fits. These tracks are established for the sighted skiing public, but they are especially beneficial to the blind skier, helping to keep him on the proper route. The tracks may be of little use for going up or down pronounced slopes, or when they become worn down. Ski centers may have an extensive network of trails varying from easy to difficult, and there is a charge for their use. The centers usually have ski equipment for rent and provide skiing instruction.

Your guide normally skis next to you on your left and a little to the rear so as to better observe your movements. When required for narrower sections of the trail, or when other skiers are passing, your guide skis behind you. As you ski together, he gives you desired information on the nature of your route, as well as needed directions for keeping you on the desired track. He tells you of approaching turns, up and down slopes, and bumps, gullies and other rough places, but only to the extent that you need it, for you should be as much on your own as is feasible. The guide may, of course, encourage you and compliment you on your efforts where merited.

The most difficult aspects of your cross-country skiing are going up and down pronounced slopes. There is nothing more tiring than your attempting to go up a slope and having your skis constantly slip back. Here, according to the steepness of the slope, and perhaps with helpful suggestions from your guide, you should adopt the best method for your skis to grip or edge into the snow.

Care must be taken on down slopes. The steeper, the longer and the more curved they are, the more difficult to negotiate. This is especially true if there are trees or bushes along the edge of the route with which you could collide. The guide can stay on top of the slope while you ski down it, telling you to go right or left as needed. The easiest way to slow your speed and make any turns is to snowplow your way down. If the slope seems too difficult for you to ski down alone, there are a couple of techniques you can use with your guide. One is for the two of you to ski down side-by-side with your arm inside his, and each hand continuing to hold a ski pole. To slow you down, each of you could snowplow with your outside ski. The other method is for you to ski down right behind your guide with one of your skis inside his two skis while you hold him around the waist

with your two ski poles in your outside hand. In your skiing, the time that you are most apt to fall is when you are going downhill. You should learn the technique of falling sideways and getting back up without undue struggle.

There is a certain sensation peculiar to blind skiers which you may have when you come to a stop after coasting downhill. It is a dizzy or unstable feeling tending to make you fall backwards. To prevent this feeling, you can resume sliding your skis forward before your coasting can come to a stop.

The safest places for your skiing are broad, obstacle-free areas. These are not necessarily cross-country ski centers, but can be meadows, golf courses, and roads which in winter are not snow-plowed and have no motor vehicles, such as in state forests. There may be other, more challenging, routes without machine-set tracks, such as forest trails, which you may wish to try. This brings us to the matter of skiing in fresh snow.

Skiing in fresh or virgin snow off the beaten track can give you more of a winter - wonderland experience away from the skiing public. Fresh or loose snow makes it easier for you to control your downhill speed, but it requires more energy to break track in fresh snow, or even to follow a freshly broken track, than to follow a well-manicured trail in a ski center. It is indeed rather difficult for a blind skier to follow a freshly made track in new snow, for either ski can easily slide off to one side or the other. If you and your guide are following a route in unbroken snow that is wide enough, he should ski beside you for best guidance, each of you breaking track. Then, if you return over the same route, you can try to follow his previously made tracks, while he more or less follows your previous tracks. If there is another sighted skier with you, he can break track, which you try to follow, with your guide skiing on your left as before. If the route is so narrow as to require single-file skiing, this will demand greater skill on your part, as your guide will be skiing behind you.

If under fresh snow there are rough places, such as stones and roots, you will need an ample layer of snow for your skiing, at least four inches or so, to ensure that you do not scrape the bottom of your skis. If the underlying surface is smooth, such as the fairway of a golf course, you can ski on a thinner layer of snow without fear of marring your skis.

In the case of older, more settled snow with harder texture, tracks previously made by skiers may be easier for you to follow. However, if such a surface is broken up by various tracks, footprints and other irregularities, your skiing will be rougher and more difficult. Skiing on icy surfaces or crusted snow should be avoided as much as possible.

When skiing for the first time as a blind person, you should receive instruction from an experienced sighted guide. If you had previously skied and then lost your sight, you will, of course, need less instruction as a blind skier. Your instructor may be able to remain your sighted guide for future occasions. In any event, once you have gained competence as a blind skier, you could have, as sighted guides, skiers who have not had experience as such. You could then give them pointers on how you wish to be

guided. Of course, you should start off, as a blind skier, on easier routes, and then you can build up to more challenging ones.

Waxed-type skis are technically the most proficient, but applying the right types of wax to them, according to snow conditions, can be a nuisance, especially for blind skiers. This can be avoided by using waxless skis. Such skis should be quite adequate for your purposes so long as they provide sufficient grip for going uphill. Waxless skis with mohair strips provide the best grip for going uphill and the most restraint for going downhill, but they provide less glide for going along the level. For the acquisition of equipment, you can consult a reputable ski touring center or outdoor equipment store regarding the type of skis, bindings, boots, and poles most suitable for your use.

Cross-country ski outings for blind persons and their sighted guides are conducted by certain organizations for the blind. The best known is Ski-for-Light, which has its headquarters in Minneapolis, Minnesota, and has regional programs in other areas of the country. The skiing outings may last for a weekend or more, with lodging and meals arranged for. They provide a useful way for blind persons to develop experience in cross-country skiing.

EPILOGUE

A blind person can take deep satisfaction in moving about in the great out-of-doors under his own power, whether on his feet, on a bicycle, in a canoe or rowboat, or on skis. His inability to see his surroundings is compensated for, at least in part, by a heightened appreciation of what his other senses bring. These may be the freshness of the air; the sun, wind or rain on his face; the fragrance of a pine forest or the musky odor of decaying fall vegetation; the flute-like tones of a wood thrush; the gentle babbling of a brook or the roar of a waterfall; and the dusting of snow he receives when he brushes against a heavily laden hemlock bough. He may enjoy such features while walking on his own; otherwise, he has the good company of sighted companions and he can take vicarious pleasure in their enjoyment of the views and other splendors of the natural world they gaze upon. He may picture in his imagination what they see with their eyes. Through these outdoor activities and experiences, he meets a physical challenge which serves to overcome his disability. His appetite is whetted for further outings away from the city, in the countryside, through the forest, up the mountain, and along the waterway.

THE END

